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ABSTRACT

This publication about school library automation in Australia contains 18 chapters divided into seven sections. The chapters in the first section presents survey results: "School Library Automation in Australia: Results of the First, Second and Third National Surveys" (Ken Dillon); and "School Library Automation in New Zealand: Results of a National Survey" (Cynthia Petersen). The next section deals with OPACs (online public access catalogs) in school libraries: "Responsive Information Environments: Effective and Affective User Education Strategies for School Libraries" (Kylie Hanson); and "Dolphins are Never Pink: Icon Use in Interfaces for Catalogs Used by Children" (Judy Clayton). SCIS (Schools' Catalogue and Information Services) is the topic of the third section: "The Role of SCIS Cataloguing Agencies: The NCEC" (Penelope Maddick); and "MARC for Teacher Librarians: An Introduction" (Ellen Paxton). The fourth section addresses issues in school library automation: "Factors Influencing the Selection of Automated Library Systems in Victorian Independent School" (Rosemary Abbott); "Selecting a Second Generation Library Automation System: A Checklist" (Jean Indermaur and Pru Mitchell); "Hidden Treasures: Creative Interrogation of Your Library Database" (John Lee); "Providing Access to Fiction in School Libraries: A Time for Change" (Ashley Freeman); and "New Schools, New Libraries, New Challenges - Automating New School Libraries in Queensland" (Pat Brosnan, Fran Robinson and Bruce McDonald). Section five discusses alternatives to integrated library automation systems: "AGAMA: A Simple, Low-Cost Automation System for Small Libraries, or, a Fair Go For All" (Gail Dous and Mary West); and "The Code Catalogue: The Teaching and Learning Alternative to Automation" (Alan Ford). Cases studies of multimedia and other future possibilities are presented in the next section: "Automating Two Schools with BookMark" (Fiona Harper); "Imagine All the Possibilities" (Arthur Winzenried); "Managing with Microfusion: A Case Study" (Chris Skrzeczynski); and "Rolling Hills Meets Alice" (Glenys Williamson). The final

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2nd Edition

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SCHOOL LIBRARY AUTOMATION IN AUSTRALIA

2ND EDITION

SCHOOL LIBRARY AUTOMATION IN AUSTRALIA

ISSUES AND RESULTS OF THE NATIONAL SURVEYS

Edited by Ken Dillon

Topics in Australian
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Centre for Information Studies
Locked Bag 660
Wagga Wagga NSW 2650

Tel: (069) 33 2325
Fax: (069) 33 2733
Email: cis@csu.edu.au
URL: http://silo.riv.csu.edu.au/cis.html

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List of Contributors

Rosemary Abbott

Rosemary has nineteen years experience in post primary school libraries. The first nine of these were spent in Victorian state schools and included time as an English classroom teacher. For the last ten years Rosemary has held the position Head of Information Services in the Library at Loreto Mandeville Hall, a P-12 Catholic girls' school in Melbourne where she is a member of the school's Curriculum, Technology and LAN Steering Committees.

Rosemary is currently Chairperson of the Libraries Committee of the Association of Independent Schools of Victoria. This Committee is responsible for the coordination of professional development activities for independent school librarians. Rosemary has run workshops on library automation at AISV conferences. In 1993, Rosemary completed her thesis on school library automation as part of a Master of Business (Information Technology) at RMIT.

Pat Brosnan

Pat is currently on leave from the TAFE sector to work on the 'Opening Collections in New Schools Project' for the Open Access Support Centre, Queensland Department of Education. She has been employed since 1971 as a librarian, teacher librarian, tertiary tutor and classroom teacher in a number of institutions in Australia and New Zealand.

Judy Clayden

Judy has been coordinator of library technology courses and lecturer in cataloguing in the Department of Library and Information Science at Edith Cowan University in Perth since 1989. Her professional library experience has been mainly in the technical services areas of monograph and serials acquisitions and cataloguing. Her other professional interests include indexing, records and archives management and the history of librarianship.

Ken Dillon

Ken Dillon lectures in teacher librarianship in the School of Information Studies at Charles Sturt University. He was formerly a teacher and teacher librarian in both government and non-government central and secondary schools in New South Wales. In addition to numerous journal articles, he has written and/or edited a number of books for teacher librarians including *Brought to Book: Censorship and School Libraries in Australia* (DW Thorpe/ALIA Press, 1993), *School Library Automation in Australia* 1st ed. (Centre for Information Studies, 1995) and *Providing More With Less: Collection Management for Australian School Libraries* (Centre for Information Studies, 1997). Ken is co-administrator of OZTL_NET, an electronic discussion group for Australian teacher librarians. His current teaching and research interests include information literacy, information technologies in schools, collection development, school library automation, the information needs of teachers and censorship.

Gail Dous

Gail is Consultant, Education Libraries at the Northern Territory Library. Born in Canada, Gail taught mostly science at secondary level for many years. She has taught in Canada, New Zealand, Australia and for two years as a CUSO volunteer in Zambia, Africa. Subsequent to a time as a teacher librarian in Australian schools, Gail was appointed Library Consultant for the Northern Territory Department of Education, based at the NT Library. At the time of writing, Gail was entering her eighth year of consultancy and feels that there is now an increasing emphasis on the position of schools in remote Aboriginal communities.

Alan Ford

Alan is Director of Lib Code Library Systems. After working in banking and surveying and studying externally, he graduated in 1970 with a Bachelor of Arts and a Diploma of Education. The completion of a teacher librarianship course in 1973 led to a 15 year career first as a teacher librarian and then as Regional Library Consultant for the Darling Downs Region in Queensland. Increasing frustration with the inefficiencies of students' information retrieval techniques led to a search for better methods and Graduate Diplomas in Librarianship and Computer Education. In 1989, he left the Queensland Department of Education to become even more involved with school libraries throughout Queensland as the Director of Alan Ford School Library and Computer Consultancy P/L, now trading as LibCode Library Systems.

Ashley Freeman

Formerly a teacher, teacher librarian and primary school principal with the NSW Department of School Education, Ashley lectures in teacher librarianship in the School of Information Studies at Charles Sturt University where his major teaching areas include children's literature and resource management. He is currently undertaking a PhD in educational history and is Assistant Editor of *Reading Time*. Ashley has also written *The Cataloguing Handbook for Australian School Libraries* (Centre for Information Studies, 1997). His current research interests include subject access to fiction, history of rural education in NSW and Australian children's literature.

Kylie Hanson

Kylie has seventeen years experience in NSW government secondary schools, most recently as teacher librarian at Glen Innes High School in the New England area of the state. Her experience with school library automation has been extensive with particular emphasis placed on using the software to enhance information service provision and thereby, to improve student learning outcomes.

Kylie's commitment to the success of OASIS Library and the development of best practice at Glen Innes High School resulted in a synergistic work environment where the package became 'transparent' allowing staff, volunteers and users to focus on their roles and needs. She has recently taken up an appointment as Lecturer in Teacher Librarianship at Charles Sturt University. Current research interests focus on OPACs and user education in Australian school libraries as well as on appropriate strategies for the development of applications available through OASIS Library.

Fiona Harper

Fiona has been a teacher librarian with the Education Department of South Australia (now Department of Education and Childrens' Services) for 13 years and is currently based at Moana Primary School. As well as being involved in the pioneering stages of Book Mark's development in South Australian schools and a user of the system for over eight years, Fiona is also an experienced Book Mark trainer and User Group and Hub coordinator. She is particularly interested in the effective use of information technologies with young students.

Jean Indermaur

Jean's first appointment as teacher librarian was to a new and fast growing international college specialising in matriculation studies for Asian students. This appointment successfully merged previous interests as a tutor in the 'Home Tutor Scheme' and experience gained during practicum placement at Trinity College. Her interests have since extended to an involvement in the College's study skills programs and extra-curriculum activities.

Currently, Jean is Manager of Library Services at Beaufort College, Alexander College and Alexander Language School, a privately owned group, which provides language, vocational, secondary and tertiary education services to local and overseas students. She is organiser of the 'WA Oasis User Group' and has designed training sessions and workshops for all levels of library staff. Her concern that as professionals we do not become technological or software 'tourists' led directly to the design of the checklist for second generation library management systems.

John Lee

In the 1960s, John was one of the first primary school teacher librarians to gain promotion in NSW. He moved to New Zealand in the 1970s where he spent seven years teaching and promoting the idea of teacher librarians in schools. On his return to Australia in 1981, John was appointed teacher librarian at the Muldoon Information and Resource Centre, the shared library of Mater Dei and Corpus Christi Colleges at

Tuggerah, on the Central Coast of NSW. Here he was involved in the design and building of the school and library through to the setup of an 'electronic library' including one of the first menu driven networks to integrate OASIS Library, various software packages and CD-ROMs, all available via OPACs.

John has a written a booklet for teacher librarians entitled *Providing Access to Treasure : Leefiction Subject Headings* as well as a number of articles in professional journals. He has lectured in various library subjects at Kurin-gai CAE and more recently at University of Technology Sydney. John has recently published his own WWW page on the Internet designed to provide helpful information for teacher librarians. (http://www.ozemail.com.au/~jhlee) He was recently awarded the John Hirst Award for services to the teacher librarianship profession by the NSW branch of the Australian School Library Association.

Penelope Maddick

Penelope is employed as a cataloguer by the National Catholic Education Commission. She has worked as a classroom teacher and teacher librarian in Catholic primary schools in Tasmania and Victoria prior to joining the Commission in 1990. Her main duties involve cataloguing religious education resources onto the SCIS database, producing a bi-monthly newsletter that is distributed to all Australian Catholic Schools (*The Catholic Cataloguer*) and participating in the presentation of professional development programs through the Catholic Education Office in Melbourne.

Bruce McDonald

Bruce had twelve years experience as a secondary teacher and teacher librarian before working for ten years as an Education Officer (Special Duties) with the Department of Education, Queensland. This role involves the providion of a range of support services to schools including the establishment of the opening collections for new schools initiative, inservice training and consultancy services, particularly in the areas of school evaluation and development. His current responsibilities as Senior Information Officer, Open Access Support Centre, encompass the coordination of the annual 'Opening Collections in New Schools Project' and involvement in the development and provision of the Department of Education's online database service known as the Information Access Network (IAN).

Pru Mitchell

Pru has held the position of Head of Library at La Salle College, Western Australia since 1990. She is a member of the school's Information Technology Committee and has been involved in the establishment of the school-wide network. Pru is currently Coordinator of the Dynix Schools User Group in Western Australia. Her previous experience in primary schools, TAFE and tertiary libraries in South Australia and Victoria has exposed her to a variety of automated library systems and contexts. From

1993-96, she was Coordinator of the Catholic Education Office of WA Library Team, a position which included an advisory role for library automation in schools. She has co-authored *Library Automation Guidelines for Western Australian Catholic Schools* (Catholic Education Office of WA, 1992).

Ellen Paxton

Ellen worked as a classroom teacher and teacher librarian in Victorian government secondary schools for six years. In July 1992, she joined the Information Services Department of the Curriculum Corporation in Melbourne as Cataloguing Coordinator. Ellen's main duties involve coordinating the SCIS (formerly ASCIS) database with a special emphasis on quality control. In recent times, Ellen has been in charge of overseeing the conversion of the SCIS database from AUSMARC to USMARC.

Cynthia Petersen

Cynthia Petersen was teacher librarian at Heatherhill High School, Melbourne for 14 years. Previous to that she had worked in public and university libraries in Auckland, New Zealand and Brisbane. Cynthia joined the National Library of New Zealand in Wellington as a Library Adviser to Schools in 1983 and with another adviser facilitates and supports the development of school libraries in 220 schools. She will retire in June, 1997 after 28 years in school librarianship.

Cynthia has always had a keen interest in information technology and was a member of the NLNZ 'Computers and School Library Management Working Group' that examined automated library management systems in 1989. She was also among the first in Australia to do research on information skills as part of her Graduate Diploma in Librarianship at the then Melbourne College of Education in 1983. Resource based learning and information literacy are her ongoing crusade!

Fran Robinson

Fran has sixteen years experience as a teacher librarian and Education Officer (Special Duties) with the Queensland Department of Education. For the last four years, she has been employed as Resource Officer with the 'Opening Collections in New Schools Project.' She is also working as a School Library Consultant with Access Automation and is author of *Getting started: A beginner's guide to the OASIS Library automation system* 2nd ed. (Access Automation, 1995).

Chris Skrzeczynski

Chris Skrzeczynski began her professional life as an Early Childhood teacher, these experiences taking her across three states. It was on a second tour of duty in NSW that she fell, by accident into school libraries with the specific qualification of having belonged to a library. Armed with this experience as a user, an understanding of how children learn and a strong belief that school libraries should be central to all learning within a school, she set about integrating these concepts and began working with class teachers to develop a fully integrated information literacy program throughout the primary school.

Along the way it became obvious that organisation of the total school resource collection was essential if such a program was to be efficiently implemented and effective. In her present position as full-time teacher-librarian at Our Lady of the Rosary P-7 School (OLR) at Kenmore in Brisbane, Chris realised that the solution to

the organisation problem lay in library automation. Using her experiences in automating as a springboard she has expanded her interest in learning to encompass computers as a learning tool and believes that technology holds the key to improved learning experiences for students of all learning styles.

Mary West

Mary is currently Consultant, Education Libraries at the Northern Territory Library. Born in Ireland, she moved to Australia in 1955 where she worked as a teacher, teacher librarian and library advisor in Queensland since 1958. Mary moved to the Northern Territory in the early 1980s where she has worked in bush and city schools and subsequently moved to her current position in 1990. She considers the most important aspect of her work to be the automation of small bush school libraries and the training of staff in AGAMA.

Glenys Williamson

As a trained teacher librarian, Glenys has worked both in the library and as the 'Key to Life' (school wide literacy program) Coordinator. She has been working with computer applications in school libraries for over ten years, the past five years at Rolling Hills Primary School.

Arthur Winzenried

Arthur is Librarian/Information Manager at Lilydale Adventist Academy in Victoria where he has headed up four years of major technology development. Previously he has worked in a range of fields including archives, teacher and public history researcher. He is author of more than 15 major works. Present commitments include a Doctorial Study program at Charles Sturt University in teacher librarian futures and speaking appointments at online meetings in London and Hong Kong.

Introduction to First Edition

The main purpose of this first national survey of school library automation was to ascertain the market share and geographic distribution of automated systems in Australian school libraries. Whilst there has been a growing body of research regarding the impact of automated systems on the role of the teacher librarian and on the educational programs offered by the school, Australian teacher librarians and researchers have been hampered by a lack of basic data about automated systems in school libraries. The result has been the first national survey of vendors of library automation systems for school libraries. The results of the survey provide the reader with an overview of the Australian school library automation scene as well as a brief history of some of the most common systems available.

Additionally, three thought-provoking papers dealing with important issues relating to school library automation in Australia have been included. Paul Drayton from the NSW Department of School Education discusses the factors crucial in the design of online public access catalogues (OPACs) for school library users with particular emphasis on OASIS Library Enquiry. Ellen Paxton of the Curriculum Corporation explains the meaning of MARC and examines the importance of the MARC record for school library catalogues including the relationship between SCIS and USMARC, while Ashley Freeman tackles the thorny issue of providing improved access through OPACs to fiction material for school library users. Finally, a select bibliography of materials about school library automation is included.

It is anticipated that subsequent surveys of school library automation vendors will occur on an annual basis to reveal trends over time in the Australian marketplace. Future reports will continue to include papers which address topical issues relating to school library automation in Australia.

Ken Dillon, February 1995

Introduction to Second Edition

Subsequent to the publication of the first edition of *School Library Automation* I have been buoyed by the feedback from readers who have been able to use the results of the first survey and some of the ideas from the contributed papers to improve their practice and/or to inform their decisions about potential sources of appropriate library management software. A pleasing outcome was the breadth of the readership who provided feedback and/or who sought additional information, ranging, predictably, from practising teacher librarians through to computer consultants, computer coordinators, principals, educational authorities, software vendors and potential vendors.

This edition includes the results of the first survey and two subsequent surveys of the school library automation marketplace in Australia. Results from the series of surveys provide trend data about the market and geographic distribution of automated systems. In particular, the section dealing with geographic distribution has been expanded to include a 'state-by-state' analysis of system penetration. I would like to thank all vendors for their cooperation in providing data for these surveys. Without their cooperation this research would not have been possible.

This edition of *School Library Automation* contains 18 chapters divided into seven sections. Section One contains the results of the Australian survey as well as Cynthia Petersen's snapshot of the New Zealand school library automation marketplace. Section Two contains two very different papers about OPACs. Kylie Hanson focuses on a model for enhancing the likelihood of successful information retrieval by users of OPACs in the school library environment while Judy Clayden examines the potential of GUIs as alternative OPAC 'front-ends' to the more traditional text-based or command-line interfaces.

As providers of almost all electronic records for school libraries, SCIS from the Curriculum Corporation, is a vital component in the school library automation 'picture'. In Section Three, Penelope Maddick describes the role of SCIS cataloguing agencies and provides some revealing statistics about SCIS records and formats. Ellen Paxton demystifies MARC for teacher librarians and explains the sometimes complex steps which have been required to transfer SCIS data to USMARC format.

Not surprisingly, a number of 'issues' in relation to school library automation have come to the fore in recent times. For many schools who automated in the early 1980s, in particular, the time has come to re-assess the capabilities of their library automation software. In Section Four, Rosemary Abbott provides some useful advice for those who once again find themselves 'in the market', while Jean Indermaur and Pru Mitchell provide a checklist to aid school communities in the selection of a second generation system.

In a thought-provoking chapter, John Lee challenges us to use our library databases for a range of resource management, reading guidance and curriculum purposes while Ashley Freeman provides a case for re-considering the provision of access to fiction via automated systems. Finally, Pat Brosnan, Fran Robinson and Bruce McDonald describe the successful model used by one educational system for setting up new schools with an automated system and foundation library collection.

In Section Five, Gail Dous and Mary West describe AGAMA, a low-cost library automation alternative for small and remote schools and Alan Ford provides the background and rationale for the Code Catalogue, a 'teaching and learning' alternative to integrated library systems.

Fiona Harper, Arthur Winzenried, Chris Skrzeczynski and Glenys Williamson profile the use of library automation software in a range of different schools in Section Six. History, current use and future possibilities are explored. Finally, Section Seven comprises a select bibliography of recently published items about library automation for the reader who may wish to pursue some aspects of the area in more depth.

Ken Dillon, February 1997

School Library Automation in Australia: Results of the First, Second and Third National Surveys

Ken Dillon

INTRODUCTION

The main purpose of the annual surveys of vendors of school library automation software was to ascertain the market share and geographic distribution of automated systems in Australian school libraries for the years 1993-1995. The third and final survey of vendors was conducted early in 1996 so that data for the 1995 calendar year could be incorporated into the final results. The surveys were also conducted in order that a profile of automated systems available for school libraries in this country might be obtained. The number of school libraries with automated systems has 'grown like Topsy' since school libraries first began to embrace the technology in the early 1980s. The heavy demands placed on teacher librarians in a time of significant structural and technological change in education in concert with the rapid pace at which automation of school libraries has proceeded has meant that teacher librarians have experienced difficulties keeping a 'handle' on developments in the area. Which systems were recommended or preferred by educational authorities? Which were available for Macintosh, PC or other platforms? Where could vendors of automated systems be contacted? What factors were unique to the Australian scene? Answers to these and similar questions were not readily available to teacher librarians and other interested parties. This chapter seeks to redress this lack of basic data by reporting on the results of a series of surveys of the Australian school library automation marketplace.

CHARACTERISTICS OF THE MARKET

A distinctive characteristic of the school library automation marketplace in Australia has been the adoption by most of the major educational authorities of 'recommended' or 'preferred' software for use in the schools which form a part of that system. Agreements between vendors and educational authorities governing the distribution and support of automated system software vary greatly from situation to situation. In some cases, for example, the software was purchased 'as is', whilst in others the educational authority worked with the software vendor in the research and development phase of the final product for implementation in schools within the auspices of that authority. Table 1 lists recommended and preferred systems for school library automation by educational authority. All but one of the government school authorities 'recommend' or 'prefer' at least one PC-based system, with Victoria recommending as many as five. Four Catholic Education Offices also officially 'recommend' or 'prefer' one or more PC-based systems, with the Tasmanian CEO also recommending a Macintosh-based system (Mac'n Library) and the Northern Territory Department of Education recommending AGAMA for small schools.

Independent schools, which form the balance of the non-government school sector, have left the choice of automated system to individual schools, although anecdotal evidence suggests that many independent schools have been greatly influenced in their choice of system by the 'prevailing' or 'dominant' system installation in their local geographic area. Exceptions included large independent schools (such as GPS schools) which may have had more complex requirements and small groups of school libraries with a common mission (e.g. 'church' schools which have decided unofficially on a 'preferred' system). The dominant system in Table 1 is OASIS Library, a fact reflected in a later section of this chapter which deals with the total number of automated system installations Australia-wide.

Table 1: Recommended and preferred automated systems for Australian school libraries by educational authority

Name of Educational Authority	Preferred/ Recommended System(s)
Government Schools	
ACT Department of Education and Training	OASIS Library
NSW Department of School Education	OASIS Library
Northern Territory Department of Education	AGAMA (Small & Remote schools)
Queensland Department of School Education	OASIS Library
South Australia Department of Education and Children's Services	BookMark, Dynix Scholar
Victorian Department of School Education	AIMS, Dynix Scholar, Microfusion, OASIS Library, OCELOT Schools
Tasmanian Department of Education and the Arts	Dynix Scholar
Western Australian Ministry of Education	Microfusion
Non-Government Schools	
Catholic Education Office, ACT/NSW	OASIS Library
Catholic Education Office, Northern Territory	None
Catholic Education Office, Queensland	None
Catholic Education Office, South Australia	None
Catholic Education Office, Tasmania	BookMark, Dynix Scholar, Mac'n Library
Catholic Education Office, Victoria	None
Catholic Education Office, Western Australia	Dynix Scholar, ELM, Microfusion, OASIS Library, Ocelot Schools

THE SURVEYS

The surveys were concerned with installations of 'integrated' systems for school library automation. By 'integrated' is meant a system which combines using a single database at least three of the usual five library functions – Cataloguing, Online Catalogue (OPAC), and Circulation. Acquisitions and Serials Control are the other two. According to this definition software which has been used in school libraries to automate individual routines was excluded from the surveys. These packages include catalogue card production software such as The Librarian's Apprentice, teaching and learning packages designed to interface with and/or 'sit over the top of' integrated systems, e.g. The Code Catalogue (330 sites) and adaptations of applications software designed to fill a specific need, e.g. the Northern Territory Department of Education's AGAMA (25 sites) which was specifically designed for use in small schools. AGAMA runs under HyperCard for the Macintosh.

All systems included in the survey are microcomputer-based except for the DOBIS/LIBIS integrated library management system used by 18 schools in the Northern Territory as part of the LINNET library network and 86 government schools in Tasmania which now use Dynix as part of the TALIS (Tasmanian Automated Library Information System). Each school library in the TALIS network operates on an individual basis with its own paremeters. The only features common to all sites are that they each access the same computer and all share the same Dynix software and bibiliographic file. Additionally, there are 12 schools using the minicomputer-based system, URICA 2000.

THE 1993 SURVEY

The 1993 questionnaire was based on a combination of questions adapted from Lighthall's series of surveys of the Canadian school library marketplace. [1] A total of 33 questionnaires were distributed to vendors of automated systems known to have school library installations or known to have recently developed a product for the school library market. A total of 29 completed surveys were returned. John O'Farrell explained that data about the Book Trak system were not provided as there was now '...less than a dozen institutions using the system' compared to the approximately 150 sites which used to exist. O'Farrell now concentrates only on supporting the remaining users and helping those who so elect with 'migrations' to other systems. Similarly, Allan Gilligan of Yaralla Computing elected not to complete the survey for the 'two or three' Electronic Library sites that existed at the time. The company had made a conscious decision some time ago to concentrate on business solutions rather than on the education sector. John Devine of GUI Imagine supplied responses for both BLISS and Imagine on the same survey form. Finally, the survey sent to the last known address for the Hermes system was 'returned to sender' unopened and subsequent investigations failed to locate any contact information.

Every effort was made to maximise the integrity of the survey data. An important part of this process was the supply of 'client lists' by vendors for verification of reported numbers of school library installations of their system. Persistence in this area and an assurance of confidentiality of client details paid off as many client lists included special, public and even academic library sites. Some lists also included other types of educational libraries such as those in Teachers' Centres, Educational Resource Centres and other educational support sites. For the purposes of this survey, 'schools' were defined as individual sites whether administratively part of a school district/region or not. They include public schools, parochial schools, private schools, and independent schools providing education at any year level, from Kindergarten to Year 12.

Careful attention was paid to stripping client lists of sites which fell outside the above definition in order that the previously embedded list of school library installations for each system was laid bare. Only two of the 29 surveys returned did not include a client list. John Devine stated that it was his company's policy not to divulge client lists except to say that '...1993 saw the completion of conversion of BLISS...to Imagine.' Devine reported a total of ten BLISS sites and two Imagine sites at the end of 1993. Alan Selby of Educational Media Supplies, which is the Australian distributor of the Winnebago systems, stated that, 'It is Winnebago policy not to divulge sites except to say over 100 sites [school *and* special libraries] exist in Australia of which approximately 20 per cent are located in NSW.' [2]

THE VENDOR VISITS AND SOFTWARE TRIALS

So as not to conduct the entire research project 'from a distance', visits were made to a number of vendors and 'trade shows' to talk to the developers/distributors of library automation software. This approach proved to be most beneficial in supplying added depth to the data supplied in the vendor surveys. In addition to familiarity with the vendor's product, current developments in terms of software and markets, future directions for the company and concerns and issues about the school library automation market were the main topics for discussion during these visits. In 1994 and 1995 the following vendors were visited: AIMS (Concord Data Solutions), Book Mark (South Australian Department of Education and Children's Services), Dynix Scholar (Dynix Australia), Libraries 2000 (Ferntree Computer Corporation), Microfusion (Education Company Australia), MOLLI (RAECO Technologies), OASIS Library (Softlink Australia) and Ocelot Schools (Ferntree Computer Corporation). Additionally, visits were made to two key organisations in the school library automation scene: the Curriculum Corporation in Melbourne as the supplier of almost all retrospective data for the conversion of card catalogues to automated catalogues, and the Information Technology Directorate of the NSW Department of School Education as the administrators of the largest single school library automation project of which this writer is aware. Finally, some vendors supplied 'demonstration' software with their returned surveys.

THE 1994 AND 1995 SURVEYS

The response rates for the 1994 and 1995 surveys were also very high. Only Biblios (1 site), Book Worm (2 sites) and Winnebago (approximately 100 school and special library sites), did not return questionnaires for these years. All other vendors returned questionnaires for 1994 and 1995. There were certainly some changes at the lower end of the market in 1994. RAECO Technologies ceased the marketing and distribution of MOLLI (16 sites) and Data Trek Australasia made an early decision to discontinue the marketing of its School Series system (0 sites) in this country. The status of two older systems known to have been installed in school libraries in the 1980s was also determined. Absolute Electronics Pty Ltd reported that the Hermes Library Management System was now completely obsolete and Cliff Love reported that the Love Data Library System no longer existed.

The years 1994-1995 also saw at least three substantial 'block migrations' of systems. In a change of heart, the Tasmanian Department of Education and the Arts decided to extend access of the TALIS network (and consequently Dynix library automation software) to primary schools. The Department had purchased a statewide licence for OASIS Library during 1993 which had resulted in 10 primary school installations in that year followed by a further 12 in early 1994. Meanwhile, in the ACT, migration of 19 government schools from Ocelot Schools to OASIS Library was begun and subsequently completed in 1995. Finally, Brenden Croese from Com Assist Solutions, suppliers of PC School Library, reported that, 'In 1995 one of our biggest user groups changed to OASIS in response to the state government endorsing OASIS as its preferred system'. Total PC School Library installations fell from 61 to 45 in the period 1993-1995.

SURVEY RESPONSES

The overall number and percentage of Australian schools with integrated library automation software installed is shown in Table 2. Responses to the 1993 survey indicated that at least 4264 Australian school libraries had automated systems installed by the end of that year. The total number of schools in Australia in 1993 was 9865. [3] Therefore, 43.2 per cent of Australian school libraries were automated at that time. The overall number of automated school libraries rose to 5238 by the end of 1994. The total number of schools in Australia at that time was 9679. [4] The percentage of automated school libraries at the end of 1994 had therefore risen to 54.1 per cent. Finally, the 1995 survey revealed a 15.6 per cent increase in the number of automated school libraries in Australia based on the same method of calculation. [5]

Table 2: Number and percentage of automated school libraries in Australia, 1993-1995

Year	Total Schools	Total Systems	% Schools
1993	9865	4264	43.2
1994	9679	5238	54.1
1995	9648	6723	69.7

Of course, these figures assume that all schools have a library. On the other hand, the actual percentage of automated school libraries would be even higher if the number of 'home-grown' (non-commercial) systems was taken into account, when any small vendors not included in this study (i.e. unknown to the author at the time of the surveys) had their installations counted, if software which did not meet the definition of 'integrated system' as used in this study e.g. AGAMA (25 sites) in the Northern Territory and Code Catalogue (330 sites) in Queensland were counted, if 1996 installations were included, and if the number of Winnebago sites could be included in the final count.

The percentage of automated school libraries in Australia in 1993 and 1994 compared favourably to that in other countries such as Canada where Lighthall estimated that for the same two years about 35 per cent and 40 per cent of Canadian school libraries respectively were automated. [6] Part of the reason for this slightly lesser percentage of automated school libraries in Canada may be due to contextual factors. In Canada, there are ten provinces and two territories (Lighthall combines the territories in her analyses). Even though education in Canada is a provincial responsibility, the responsibility for selection of automated systems lay at the school district or individual school level. In Australia, the system of 'recommended' and/or 'preferred' systems (which has both its supporters and detractors) has resulted in an acceleration in the speed at which school libraries have become automated; for many schools the need to conduct a series of software evaluations and to write submissions for funding was negated by (for example) the supply of software free of charge already mounted on a hard disk and 'ready to go'.

THE RESPONSES

Table 3 shows the functions/modules available for systems reporting Australian installations and for four systems which have demonstrated their intention to break into the Australian schools market (Athena, Biblios, Book Worm and MUSAC Library). The common element in all of the systems listed is the integration of Cataloguing, OPAC (Online Public Access Catalogue) or 'Enquiry', and Circulation modules. After that, there is a selection of modules available including Acquisitions and Serials and a veritable smorgasbord of automated extras including report generation, graphical user interfaces (GUIs), access to bibliographic databases such as Guidelines and textbook management and/or separate system administration modules. Of course, the list of 'extras' should be consulted with caution as some vendors went into more detail than others in response to this question. Also, whilst options like statistics and stocktake are separate modules for some systems, these capabilities are 'built-in' to the existing base modules of others.

Table 3: Availability of functions/modules by automated system

System Name	CAT	OPAC	CIRC	ACQ	SER	OTHER
AIMS	✓	✓	✓	✓	✓	1,2,3,4,5,6,8
Athena	✓	✓	✓	✓	✓	1,2,4,5,6,7
Biblios	✓	✓	✓	-	✓	
Book Mark	✓	✓	✓	-	-	1,2,3,4,5
Book Plus	✓	✓	✓	✓	✓	1,3,4,5
Book Worm	✓	✓	✓	-	-	1,5,6
Books	✓	✓	✓	✓	-	1,5
CSL Library Pro	✓	✓	✓	✓	-	1,5
DOBIS/LIBIS	✓	✓	✓	✓	✓	1,3,4,10
Dynix Scholar	✓	✓	✓	✓	-	12
ELM	✓	✓	✓	✓	✓	1,5,8
Imagine	✓	✓	✓	✓	-	2,5,7
Integrated Library Management System	✓	✓	✓	✓	-	1,3,5,13
Libraries 2000	✓	✓	✓	✓	✓	1,3,5,10
Mac'n Library	✓	✓	✓	✓	✓	1,3,5
MacBee Library System	✓	✓	✓	✓	-	5
Metamarc	✓	✓	✓	✓	✓	1,3,4,5,8,9
Microfusion	✓	✓	✓	✓	✓	1,5,8,10
MOLLI	✓	✓	✓	✓	✓	5,6
MUSAC Library	✓	✓	✓	✓	-	1,2,3
OASIS Library	✓	✓	✓	✓	✓	1,3,6,7,9,10,11
Ocelot Schools	✓	✓	✓	✓	✓	1,3,4,5,9
PC School Library	✓	✓	✓	✓	-	2,5
Prolib	✓	✓	✓	✓	-	1,3,5
ROS Library System	✓	✓	✓	✓	✓	5
SIRCAT II	✓	✓	✓	-	-	4,5
URICA 2000	✓	✓	✓	✓	✓	1
Winnebago	✓	✓	✓	✓	-	1,2,3,5,6

KEY:

1. Report generator **2.** Student data import **3.** System administration **4.** Statistics **5.** Stocktake **6.** Textbook management **7.** Imaging **8.** Budgeting/Finances **9.** User defined codes **10.** Communications **11.** Other modules such as Rapid Retrospective, Self circulation and Advance bookings can be incorporated into the system if desired **12.** Media scheduling, Community resources, Kid's Catalog and Dial PAC **13.** Media and facilities scheduling **14.** Reserve collections and Materials booking.

Of the 28 systems listed in Table 3, 12 are MS-DOS systems, five are Unix-based, two are Macintosh-based, two use PICK, two are available for PICK and UNIX, two for MS-DOS and UNIX, one is available for MS-DOS and Macintosh, one runs under Windows and the remaining system is available for both DOS/VSE and MVS platforms. Table 4 indicates which operating system(s) are used by each product as well as the reported availability of a USMARC facility. Availability of this facility is very important since SCIS data now conforms to the USMARC standard.

Table 4: Operating system and availability of MARC facility by automated system

System Name	MS-DOS	UNIX	MAC	PICK	OTHER	USMARC?
AIMS (1)	-	✓	-	-	Windows	Yes
Athena (2)	-	-	-	-	Windows	Yes
Biblios	-	✓	-	-	-	Yes
Book Mark	✓	-	-	-	Windows	Yes
Book Plus	-	✓	-	-	-	Yes
Book Worm	✓	-	-	-	-	No
Books	✓	-	-	-	-	No
CSL Library Pro	-	-	✓	-	-	Yes
DOBIS/LIBIS	-	-	-	-	DOS/VSE, MVS	Yes
Dynix Scholar (1)	-	✓	-	✓	Windows	Yes
ELM	-	-	-	✓	-	Yes
Imagine (3)	✓	✓	-	-	Windows	Yes
Integrated Library Management System	✓	✓	-	-	-	No
Libraries 2000	-	✓	-	-	-	Yes
Mac'n Library	-	-	✓	-	-	Yes
MacBee Library System	✓	-	-	-	-	No
Metamarc (1)	-	✓	-	-	Windows	Yes
Microfusion (4)	-	-	-	✓	Windows	Yes
MOLLI	✓	-	-	-	-	Yes
MUSAC Library	✓	-	-	-	-	Yes
OASIS Library	✓	-	-	-	Windows	Yes
Ocelot Schools	✓	-	-	-	-	Yes
PC School Library	✓	-	-	-	-	No
Prolib	✓	-	-	-	-	No
ROS Library System	✓	-	-	-	-	No
SIRCAT II	✓	-	-	-	-	No
URICA 2000 (5)	-	✓	-	✓	-	Yes
Winnebago	✓	-	✓	-	-	Yes

NOTES

Where a system runs under Windows, readers are advised to contact the vendor directly should they wish to ascertain the system's compatibility with the Windows and/or WindowsNT and/or Windows95 operating systems.

(1) Runs on UNIX and/or XENIX as a server to MS-DOS, WINDOWS or MAC under terminal emulation. Metamarc also provides access via a WWW browser such as Netscape
(2) Searching also available for Macintosh
(3) Runs on MS-DOS as a server to UNIX, Windows or Macintosh under terminal emulation
(4) Runs on PICK as a server to MS-DOS, Windows or Macintosh under terminal emulation
(5) Runs on UNIX or PICK as a server to Windows or Macintosh under terminal emulation. Also provides access via a WWW browser such as Netscape.

AUTOMATED SYSTEMS IN SCHOOL LIBRARIES: MARKET SHARE

Readers are reminded that most Australian educational authorities maintain a policy of 'recommended' or 'preferred' library automation software for school libraries. Whilst some schools in these educational systems have 'gone their own way', the vast majority have adopted their educational authorities' recommendation. As noted earlier, many schools find the 'offer' too good to refuse when a combination of educational authority tested and trialled library automation software is offered to the school free of charge, especially if training and support are included. Some teacher librarians have 'migrated' their systems from an initial selection across to a recommended or preferred system as a result of these and other attractions (such as the existence of an active local users' group) and sometimes due also to disenchantment with the previous system in use.

There can be no doubt that the high installation figures for some systems are due to their inclusion on the recommended/preferred lists of educational authorities. Some vendors spoke of the often quite rigorous tender processes in which they had been involved. A number of vendors considered the school library market to be a 'closed shop' and have concentrated on other markets, most notably in the area of special libraries and small public libraries. Alan Selby of Winnebago expressed '...concerns about the lack of freedom in the market and a lack of understanding about what is required in a library system to protect the data'. In his response to the 1994 survey, Ray Howell of Correlations (developer of Prolib) commented that:

> *Innovation in software comes about when there is an open competitive market. This is to the advantage of the schools and to the Australian software industry. As Prolib was never packaged as a glossy product it may well have remained as a small player in the marketplace but there would be far better products now available if the market was more open.*

This is not to say that some of the larger vendors do not also see a place for open competition in the marketplace. In his response to the 1995 questionnaire, Dean Hodgson from the Book Mark Project argued that

> *...schools need a range of library automation systems from which to choose, in order to adequately meet the wide variations in their needs. Adherence to one system results in stagnation of development and improvements that could benefit students sooner than later. The single system approach can also cause schools to*

> *commit considerable funds and effort over several years that, in the long run, are wasted on software too complex to be used by most of the people in the school - particularly when key personnel transfer out - or which requires large amounts of annual support expenditure by education systems.*

In his response for the same year, Ian Bentley from Chancery Software lamented the lack of recognition for Macintosh solutions despite the substantial presence of that platform in the education sector:

> *As our system uses the Macintosh platform, Information Technology Divisions have continually blocked its adoption for larger bodies like departments of education. Despite this, our user base has continued to grow, especially amongst smaller schools unable to afford the large outlay for single-use hardware and high cost software solutions.*

John Acton from Microskil also argued for a more open approach in his 1995 return:

> *…the 'recommended and preferred systems' policies in place in all states makes it extremely difficult for a 'newcomer' to break into the schools market. Many librarians will not consider ANY system which is not on the list. However, the withdrawal of support for Ocelot by Ferntree shows the futility of trying to regulate the market. Let the marketplace prevail!*

Competition in the school library automation marketplace is clearly fierce, and it quickly becomes evident that some vendors are not only struggling to establish new sites but are also battling to maintain their existing installations. Table 5 lists total installations of automated systems in Australian school libraries in descending order. The first, fourth and seventh numerical columns show the actual number of installations of each system Australia-wide as at 31 December 1993, 1994 and 1995. The second, fifth and eighth columns indicate the percentage market share of each of the automated systems. The reader is reminded that these figures indicate *school library installations only*.

From Table 5 it is evident that the 'Big Five' systems dominate the market with about 88 per cent of installations Australia-wide. Since 1993, Microfusion has replaced Ocelot Schools as the third largest system in terms of market share. In terms of new sites, the 'Top Three' have performed solidly while growth in the number of Ocelot Schools and Dynix Scholar sites has been steady at best. It might be argued that there could be some 'freeing up' of the market with Ferntree Computer Corporation's decision to cease distribution and support of Ocelot Schools. Of course, much will depend on user reaction to any alternative arrangements for support of that system. Other systems to report steady growth include AIMS and the two Macintosh systems, CSL Library Pro and Mac'n Library. Of the remaining systems, Metamarc, PC School Library, MacBee Library System, DOBIS/LIBIS and URICA actually recorded less school library sites in 1995 than in 1993. It is very likely that some other systems (e.g. MOLLI and Libraries 2000) which are no longer distributed and/or supported have also been 'migrated' to other software and may be over represented in the 1995 totals.

Table 5: Total number of installations and percentage market share of automated systems in Australian school libraries

System	Total 1993	Market Share(%)	New in 1994	Total 1994	Market Share(%)	New in 1995	Total 1995	Market Share (%)
OASIS Library	2044	47.9	582	2626	50.1	1124	3750	55.8
Book Mark	621	14.6	135	756	14.4	156	912	13.6
Microfusion	309	7.2	105	414	7.9	121	535	8.0
Ocelot Schools	317	7.4	33	350	6.7	19	369	5.5
Dynix Scholar	245	5.7	88	333	6.4	30	363*	5.4
Prolib	137	3.2	6	136	2.6	2	138	2.1
AIMS	91	2.1	7	98	1.9	10	108	1.6
CSL Library Pro	75	1.8	12	87	1.7	12	99	1.5
Mac'n Library	56	1.3	18	74	1.4	24	98	1.5
SIRCAT II	68	1.6	8	76	1.4	4	80	1.2
Metamarc	68	1.6	0	68	1.3	5	50	0.7
PC School Library	61	1.4	4	43	0.8	2	45	0.7
Books	26	0.6	3	29	0.6	0	29	0.4
MacBee Library	31	0.7	0	31	0.6	0	23	0.3
ELM	20	0.5	0	20	0.4	1	21	0.3
ROS Library System	14	0.3	2	16	0.3	2	18	0.3
DOBIS/LIBIS	21	0.5	0	19	0.4	0	18	0.3
MOLLI	16	0.4	0	16	0.3	0	16	0.2
Libraries 2000	14	0.3	0	14	0.2	0	14	0.2
URICA	13	0.3	1	14	0.2	0	12	0.2
Other	17	0.4	4	18	0.4	8	25#	0.4
Total	4264	99.8	1008	5238	100.00	1520	6723	100.2

#Consists of: Imagine (9); MUSAC Library (6); Integrated Microcomputer Library System (4); BookPlus (3); BookWorm (2); Biblios (1).

* Includes 86 TALIS Schools

OASIS LIBRARY: A SPECIAL CASE

From Table 5, it is obvious that OASIS Library dominates the school library automation marketplace in Australia. Originally developed by Softlink Australia as ALARM in the mid-1980s, the software was re-developed as OASIS in 1988 following Softlink's successful tender to develop and supply school administration and library automation software to the NSW Department of Education in the previous year. Since the early 1990s, OASIS Library has been successfully marketed in New Zealand, Europe (where it is known as ALICE), in Iceland (where it is known as EMBLA) and in the United States, where it is known as ANNIE. By the end of 1995, there were approximately 4000 libraries of all types using Softlink's library automation software. 'Recommended' and/or 'preferred' by six different educational authorities (either solely or in addition to other systems), Softlink Australia has different contractural arrangements with each of these authorities for the distribution and support of OASIS Library. See Tables 6-9 for a more detailed breakdown of the distribution of OASIS Library installations throughout Australia.

Table 6: Total OASIS Library installations in Australia to 31 December 1995 by source of software

Supplier/Educational Authority	Number of Installations by Year 1993	1994	1995
SOFTLINK**	242	348	445
ACTDE&T*	46	59	76
NSWDOSE	1038	1295	2208
QLDDOSE*	238	354	406
NSW/ACT CEO***	298	350	363
VICDOSE*	182	220	252
Total	2044	2626	3750

* Softlink installed and supported

** Excludes ACT, Qld and Vic government schools

*** Excludes schools supported by Softlink

Table 6 shows that about 60 per cent of the 3750 OASIS Library sites established to the end of 1995 were within the NSW Department of School Education. Since the first survey in this series was administered, the Department has negotiated a statewide licence for the installation of Version 2.0 of the OASIS Library software in existing sites and the provision of this latter version of the software to '...some 996 small schools with less than 300 students...[previously] ineligible for OASIS Library'. [7] Additional funding to assist these small schools with the retrospective conversion of their cataloguing records using SCIS was also to be provided. [8] By the end of 1995, all school libraries within the NSW Department of School Education, save 12, were automated with OASIS Library.

In ACT, Queensland and Victorian government schools, the software licensing agreement for OASIS Library has involved Softlink installation and support. In the ACT, where OASIS Library has been the 'preferred' system since 1990, each school library is a direct client of Softlink and has been provided with telecommunication/facsimile support and annual training for a fee. Where possible, additional assistance to schools has been provided by School Library Services on an 'unofficial' basis. In Queensland, the arrangement (from early 1994) was that government schools wishing to automate should purchase OASIS Library, although those schools already automated with alternative software could retain that software. Training and support were to be provided directly to schools by Softlink. OASIS Library has also been one of five automated systems on the library automation contract for Victorian government schools.

In systemic Catholic schools administered by the NSW/ACT Catholic Education Office, OASIS Library has been made available to all schools within the auspices of participating dioceses. At the end of 1995, a total of seven out of 11 dioceses were actively participating in this arrangement. Training and support were provided at the diocesan level. Some schools have been directly supported by Softlink (mostly sites installed prior to CEO agreements with Softlink). Schools with OASIS Library in the remaining four dioceses were almost always Softlink installations.

Table 7: OASIS Library installations in Australia by source of software, 1994-1995

Supplier/Educational Authority	Number of New Installations 1994	1995
SOFTLINK**	106	97
ACTDE&T*	13	17
NSWDOSE	257	913
QLDDOSE*	116	52
NSW/ACT CEO***	52	13
VICDOSE*	38	32
Total	582	1124

* Softlink installed and supported
** Excludes ACT, Qld and Vic government schools
*** Excludes schools supported by Softlink

A total of 582 new OASIS Library sites were recorded for the 1994 calendar year with over 370 installed in NSW and Queensland government schools. In 1995, 913 schools in the NSWDSE received OASIS Library while growth in the number of installations in other school systems was generally steady. Nineteen ACT government schools changed from Ocelot Schools to OASIS Library in this time while 22 government school sites in Tasmania migrated across from OASIS Library to Dynix Scholar on the TALIS network. Significantly less OASIS Library sites were installed in NSW/ACT CEO schools in 1995 than in 1994, indicating that most of the participating seven dioceses now have all, or at least the vast majority, of school libraries automated.

Table 8: Total OASIS Library installations in Australian schools by state/territory as at 31 December 1995

State/ Territory	Softlink Sites	Government School sites	Catholic Education Office Sites	Total
ACT	16	76	19	111
NSW	146	2208	344	2698
NT	33	–	–	33
QLD	142	406	–	548
SA	9	–	–	9
TAS	2	–	–	2
VIC	85	252	–	337
WA	12	–	–	12
Total	445	2942	363	3750

Table 9: New OASIS Library installations in Australian schools by state/territory, 1995

State/ Territory	Softlink Sites	Government School sites	Catholic Education Office Sites	Total
ACT	4	17	3	24
NSW	52	913	10	975
NT	2	–	–	2
QLD	17	52	–	69
SA	–	–	–	0
TAS	–	–	–	0
VIC	20	32	–	52
WA	2	–	–	2
Total	97	1014	13	1124

Table 8 provides a breakdown of OASIS Library installations across Australia by state/territory irrespective of source of software or licensing arrangments/agreements between Softlink and educational authorities. Almost 80 per cent of all OASIS Library installations in Australia are in government schools spread across four states and territories. About 60 per cent of installations are in NSW government schools alone. Some broad patterns begin to emerge here. Clearly OASIS Library is the dominant system in NSW and the ACT. The low representation of the software in most of the other states and territories (except for Queensland), indicates that some other software might dominate those markets. Such a contention is in fact borne out later in this chapter. Suffice it to say here, that the South Australian market is dominated by Book Mark/Dynix Scholar, Tasmania by Dynix Scholar and Western Australia by Microfusion. The Northern Territory, and particularly Victoria, are more 'cosmopolitan' in terms of the systems represented in their school libraries.

It is evident from Table 9 that about 81 per cent of new OASIS Library installations for the 1995 calendar year were in NSW government schools. The small number of installations reported for educational systems for which OASIS Library is recommended or preferred software in tandem with the large number of smaller government schools automated in NSW in 1995 would lend substantial weight to an argument that the market for *new* library automation system installations in Australia was fast reaching saturation point.

The most notable developments for OASIS Library in 1995 included the worldwide release of version 3.5 of the software, the creation of Softlink's WWW server, the announcement of the Alice for Windows Project and the release of Book Wizard, a multimedia, leisure reading selection tool for school-age children. At the time of writing, the Alice for Windows Enquiry module was available and integration between it and Book Wizard on the same network was available.

NEWCOMERS TO THE MARKET

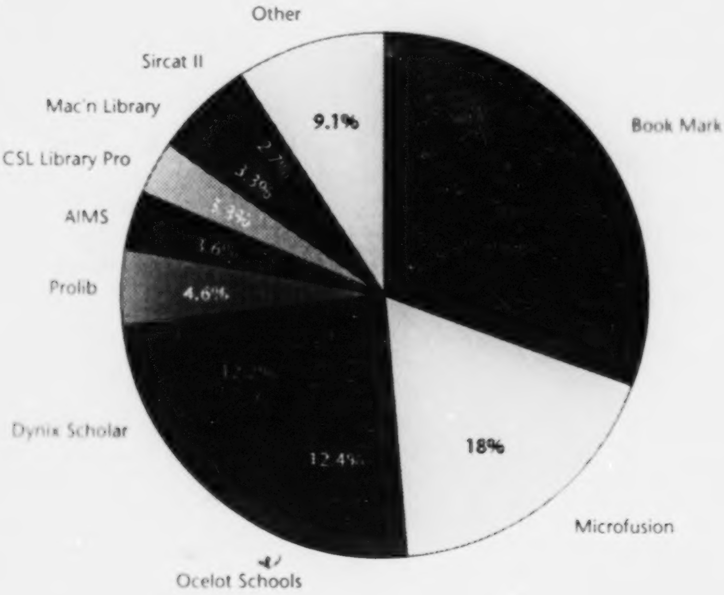
Despite the dominance of the 'Big Five' (OASIS Library, Book Mark, Microfusion, Ocelot Schools and Dynix Scholar) in the Australian school library marketplace in terms of number of installations, a group of 'new players' have also attempted (with varying degrees of success) to break into what is surely a difficult market. These new players have included Biblios (formerly Concorde Library Management System) from Qantel, Book Worm from Orana Home and Business Centre, Data Trek Schools Series from Data Trek, Imagine (formerly BLISS) from GUI Imagine, Libraries 2000 (formerly INFOMARC) from Ferntree Computer Corporation and MUSAC Library from Nutshell Technologies. While Biblios, Imagine and Libraries 2000 were re-developed and upgraded versions of earlier software, Book Worm was a totally new product on the market. The Datatrek Schools Series originated from the United States and is one of a number of versions of the software available for libraries (the others are 'Manager Series' and 'Professional Series'). The Schools Series has been installed in about 400 school libraries worldwide. [9] MUSAC Library had its origins in New Zealand and was developed as part of the Massey University School Administration by Computer software. There are 517 school and college users of the software in New Zealand [10] and approximately 400 in other countries including the United States and various Pacific nations. [11] Imagine was the result of a major revision of an earlier system called BLISS (Bacone Bay Library and Information System). The rather grand sounding title of the earlier version was quite prophetic since Imagine (which now bears little resemblance to its ancestor) was one of the first systems for the school market to incorporate multimedia (text, image, CD-ROM and Internet) into a single solution.

One new system to the Australian school library market in 1995 was Athena. Developed by Nichols Advanced Technologies Inc (developers of the DOS-based MOLLI system), Athena is available for the Windows platform although users can search the catalogue using Macintosh computers as an extension to the basic system. Extensive use is made of Windows characteristics in its intuitive user interface which is laid out so that touch screens can be used if required. According to John Ridler from Skaha Pty Ltd, Australian distributors of Athena, the system was '...designed to be scalable so that it is capable of handling large collections as well as small and has robust networking capabilities. For this reason, Athena is used by a variety of users ranging from public libraries to schools and government'. The Athena system was recently reviewed by Clyde, Shelling and in *Library Technology Reports*. [12]

LEADERS IN THE MARKET

Figure 1 shows total installations of automation software in school libraries as well as 1995 installations *excluding* OASIS Library sites which have been treated separately in a previous section of this chapter.

Figure 1: *Percentage of market share of automated systems in school libraries excluding OASIS Library*



When OASIS Library sites are discounted, Book Mark, Microfusion, Ocelot Schools, and Dynix Scholar account for 73.3 per cent of the remaining school library installations between them. Development of Book Mark began at the Angle Park Computing Centre in Adelaide in 1987 but the software (released as version 3.0) was not made available to schools until late 1989. Originally developed for the lower end of the school library automation market, the software has undergone a number of major and minor revisions which, in tandem with competitive pricing, has resulted in the software's broad market appeal. Distributed by the Book Mark Project within the South Australian Department of Education and Children's Services, the latest version of Book Mark to be made available was 9.2 which was released in mid 1995. Dean Hodgson, software developer for Book Mark, reports that this latest version contains several new features including an author authority system, optional mouse controls, SEE and SEE ALSO references in subject and author authorities, a new reservations system and a new borrower comments field. Hodgson also reported that the development of version 10 of the software (tentatively called Book Mark for Windows) was under way and was due for general release in mid-1997.

The development of the Microfusion Information Management System began in Victoria in the mid-1980s with the software becoming generally available in late 1990-early 1991. Marketed and supported by Microfusion Pty Ltd, the product made its presence felt in the marketplace in June 1991 when the Western Australian Ministry of Education chose Microfusion as its preferred system for the following five years. Recent developments include a re-positioning of Microfusion's software platform to enable full connectivity with UNIX, PICK, MS-DOS and Windows NT. Installation of Advanced PICK and Windows NT versions of the software commenced during 1995. In common with OASIS Library and Book Mark, Microfusion has been very active in data conversions and software migrations and has begun to develop a stronger presence on the eastern seaboard, particularly in Victoria.

The Ocelot Library System for PCs is a DOS-based package which was available in two versions, Ocelot Schools and Ocelot Specials. In Europe and Canada (where the system was first developed in 1984), Ocelot has been marketed as the Columbia Library System since 1987. [13] In Australia, New Zealand and Papua New Guinea, Ocelot had been marketed and supported by Ferntree Computer Corporation since 1985. From 1990, development of the software was carried out jointly by Ferntree in Australia and McGraw-Hill in the United States. In addition to its cessation of support for Libraries 2000, Ferntree have also indicated that it would be withdrawing supply of and support for Ocelot by mid-1998. Reaction to this news from the market has been interesting, to say the least. It is likely that Ferntree will negotiate an agreement for Ocelot support with another party. Other vendors have wasted little time in 'targeting' existing Ocelot schools as potential sites.

The Dynix automated library system is available in a number of versions including Dynix (fully featured system), Dynix Marquis and Dynix Scholar (for schools). Dynix began development in Provos, Utah in August 1983 and opened its Australian office in Adelaide in 1986. Recent developments with Dynix include the appearance of the first Dynix for Windows module (Cataloguing) in late 1995. Pac Plus for Windows also became available at that time. Pac Plus provides access to the local library catalogue, remote databases and the Internet. Community Resources and Media Scheduling modules have also become available as options. Originally developed by CARL Systems of Denver Colorado in cooperation with the Denver Public Library, Kid's Catalog is a graphical user interface (GUI) for OPACs which has been designed specifically for use by children. It combines a colourful click-and-point pictorial interface with thousands of subjects and subdivisions designed specifically for young users. The first Kid's Catalog trial was conducted at Redcliffe City Council Library in Brisbane in 1993.

THE MIDDLE GROUND

The next biggest group of installations (about 21 per cent of the market share excluding OASIS Library) was that which included Prolib, AIMS, CSL Library Pro, Mac'n Library, Sircat II, Metamarc and PC School Library. Originally developed for the Apple computer by Ray Howell in 1980, Prolib was one of the first school library automation systems to gain wide acceptance among teacher librarians. While the first two versions of the software were developed for the Apple, there were subsequently five major releases for IBM PC culminating with a Version 6.0 trial in a Tasmanian school in 1994. Most of the existing Prolib sites were running Version 3.0 of the software with upgrades to version 6.0 on the mainland by the two companies that sell and support the system, AVR Systems (Melbourne) and Infotech Education Services (Sydney), commencing in 1995. Version 6.0 enhancements include alternative searching procedures beyond keyword searching (e.g. tagged headings and searching on full multiple subject headings), improved partial stocktake functions, a more sophisticated reporting module, improved statistical reporting module (e.g. for circulation and collection management), and a number of additional utilities.

The AIMS system was developed in Australia for the school library market although it is gaining increasing recognition in the special library sector as well. Marketed by Concord Data Solutions of Brisbane, the system has a number of distinctive features of interest to teacher librarians including an 'assignment register' which allows staff to record assignments which students can then locate through the OPAC. The notes field allows for specific instructions or detailed information about finding resources. The 'table of contents' provides the facility to catalogue contents, whether individual programs in a series or on a tape, or poems, short stories or essays in a collection or anthology. Recent major developments have included availability of the software for Windows NT and Novell Netware. The release of MasterFile, electronic vertical file management software and Charlotte, for World Wide Web cataloguing and management, were major associated developments in 1995.

Available in either single-user or multi-user versions and originally developed in Canada, CSL Library Pro (formerly MacSchool Library) is one of three Macintosh-based systems currently available to Australian schools (the others are Mac'n Library and Winnebago Circ/Cat for Mac). Marketed by Chancery Software of Sydney, the software can be purchased as a 'stand-alone' system or can be used in conjunction with the MacSchool Student Information System. The current version of the software can handle up to 65,000 items and 5000 users. A new version was released in late 1995 which contained a number of (mainly technical) enhancements including improved interface with MacSchool, improved search speeds, unlimited user reservations, better circulation window and more flexibility in defining user ID numbers and data fields. Another recent feature was the inclusion of a keyword search facility wherein keywords are identified by an algorithm within the program rather than manually by the teacher librarian.

Another Macintosh-based system for automation of school libraries in Australia is Mac'n Library. Developed in Melbourne by the Tailor-Made Database Company in 1992, this system was designed as a 'low cost alternative to traditional PC systems' on a platform with little representation in the school library marketplace. The system will import ASCISRECON files and student records from the Victorian Department of School Education's CASES program. A 'catalogued collection of book records and a collection of approximately 2,500 SEE and SEE ALSO cross references' are also available for purchase separately or ready-installed on the hard disk at the time of installation. A student (modified) version of the system is also available which prevents student access to the 'insertion, deletion and editing' functions of the program. The student version can be run on a stand-alone Macintosh or on a network using a separate single user version of Omnis and its own data file. Available as version 4.0 since late 1995, Mac'n Library has been used by 'MARC Vans' in rural Victoria. A recent major enhancement was USMARC capability.

Sircat was originally developed as an Apple computer system in the mid-1980s by the Melbourne Apple dealer Computer Knowledge. Sircat II moved to MS-DOS when MicroPower purchased the product in mid-1990. The system can handle up to 65,000 records. A highly compact file structure is used so that the software comes installed on an 'easily large enough' hard disk. In excess of 40 of the current users of the system who were originally running the Apple version of the software have since upgraded to MS-DOS. The latest version of the software is 4.42 which became available in late 1995. An interesting feature of this software is the provision of a Resource Database 'containing over 80,000 records which are found in typical school libraries, primary and secondary, throughout Victoria'.

Like Prolib, Metamarc (formerly MICMARC) was a pioneer of the Australian school library market. Developed in 1980 in Victoria by Ewen Boord for use in school and other small libraries [14], Metamarc was purchased by Microskil Pty Ltd in late 1993 after a period of consolidation of the system's user base by the previous owners. Version 11 of the software was released in mid-1995 and included a complete redesign and rewrite of the management module for the administration of serials, acquisitions and budgeting. Version 12 soon followed and boasted a number of major enhancements. This version '...is clearly superior in functionality as a resource retrieval tool...It uses the Netscape interface to allow users to search for information. Features include portability across different computer platforms; use of a familiar search screen; use of Hypertext links to allow users to move from place to place (e.g. if an item is located, clicking on author or subject will recover other items by that author or entered under that subject heading); only bibliographic fields with entries are displayed on screens and Internet documents from cache, archive or online can be accessed the same way. Release 12 can also act as a proxy server'. [15]

The library module of PC School was developed in 1989, three years after the release of the original PC School administration program. PC School Library can be integrated with PC School or used as a stand-alone system. An interesting feature of PC School is a stratified pricing structure where the cost of the whole system or any of its stand-alone modules is calculated on the basis of the school's enrolment. The aim of this pricing structure is to make the software an affordable option for small as well as larger schools. PC School Library was developed in Rockhampton, Queensland by Com-Assist Solutions.

In terms of the percentage of new installations in the 'middle ground' category in 1995, excluding new OASIS Library sites, Book Mark (39.4 per cent) and Microfusion (30.6 per cent) were clear leaders, followed by Dynix Scholar (7.6 per cent) and a group of systems including two Macintosh-based systems (Mac'n Library 6.1 per cent, and CSL Library Pro – 3 per cent). Ocelot Schools sites grew by 4.8 per cent in 1995. It is interesting to note that CSL Library Pro was the only system from this group not to be included on the recommended or preferred lists of educational authorities (see Table 1). While there is clearly a major advantage for vendors, in terms of numbers of new installations, in remaining competitive in the tendering process for school library automation software with educational authorities, CSL Library Pro and Mac'n Library have clearly begun to carve out a market niche in the small school library automation market.

THE REMAINING SYSTEMS

The final group of installations (5.9 per cent of the school library market share excluding OASIS Library) is that which includes Books, MacBee Library System, ELM, ROS Library System, MOLLI, Libraries 2000, URICA, Imagine, Integrated Library Management System, BookPlus and those systems previously discussed under the heading 'Newcomers to the market'. All but one of the 29 Books sites are located in Victoria. Sometimes referred to as the Sandhurst Computer Services Library System (after the company which developed the system in 1989 as part of a school administration package), the Books software is ASCISRECON compatible. Keyword searches by title, author, subject, etc. are possible as is the production of a range of reports such as borrower statistics, various lists (e.g. shelf list, overdue list) and catalogue cards.

Specifically developed in 1988 for the primary school market by Triple R Software Services, the MacBee Library System comprised cataloguing, circulation (by barcode reader), enquiry and stocktaking modules. Additionally, 'over 11,000 items from picture story book, fiction and non-fiction areas are supplied on disk for transfer to your school's library database.' All 23 MacBee Library sites are located in Victoria. Rob Rankin from Triple R Software Services reported that further development of the system is unlikely and that a proposed upgrade to include a MARC facility has been discontinued. Existing users are being supported, however, and the company has offered to transfer data files to an appropriate format for those schools wishing to migrate to another system.

The ELM (Electronic Library Management) library system was developed by Brett Lester in Perth, Western Australia between 1987 and 1991. [16] ELM is a fully integrated system which operates in an Advanced PICK native operating environment allowing for an unlimited number of users on multi-task terminals in the school library situation; it is suitable for use on minicomputers and mainframes in addition to PCs. All 21 ELM school library sites are located in Western Australia. The system accepts SCIS records and is now marketed by Collier Knyn & Associates of South Perth. Recent enhancements to the software include bulk reservation cancellations and improved OPAC searching options.

Developed in Victoria and introduced onto the market in 1990, the ROS Library System is a fully integrated system which features multi-user CD access and a remote stocktake facility. The system is ASCISRECON compatible and can operate as a single-task terminal or on multi-task terminals on a LAN using Novell Netware. There are 18 ROS Library Systems installed in school libraries, all of which are in Victoria. Developers of the system, ROS Software Pty Ltd, have recently focused closely on the installation of Local Area Networks (LANs) in schools including the provision of Internet access. Other recent developments include a periodical accession register to replace the conventional visible index and a Windows 95 version of the ROS Library System.

The most notable development with the minicomputer-based URICA 2000 Library System in the period covered by these surveys was the appearance of version 5.0 and 5.1A of the software. URICA 2000 is installed in a wide range of library types worldwide. Chris Thewlis of Sanderson Computers, Australian distributors of URICA 2000, points out that the system is '...generally only sold to private schools due to it being a minicomputer system. This makes it too expensive for government schools.' There are currently 12 school library users of the system Australia-wide.

Originally developed in North America and marketed there by Nichols Advanced Technologies Inc., the MOLLI (Micro Online Library Information) system was marketed in Australia by RAECO Technologies. Rated the number one system for school libraries by the American Library Association's *Library Technology Reports* [17] in 1993, MOLLI was installed in 16 school libraries Australia-wide. Whilst MOLLI operates in an MS-DOS environment, Nichols have since announced the release of Athena (for Windows) and Athena/Mac (for the Macintosh). These new products incorporate graphical user interface and touch screen technologies into the integrated library management system. As indicated earlier in this chapter, Athena became available in Australia in 1995 and is marketed by Skaha Pty Ltd of Harbord, NSW.

In 1993, Ferntree Computer Corporation became involved with Libraries 2000 which it marketed as its 'lower to mid range UNIX based library management system'. Prior to that time, the system was marketed under the name INFOMARC and later re-named Libraries 2000 by the developers (Libraries 2000). In 1995 there were 14 school library users of the system, most of them in Western Australia where support was supplied by Unix Systems Specialists of West Perth. The future of Libraries 2000 is now uncertain as Ferntree no longer supplies and supports the system.

The Integrated Library Management System (formerly the Lothlorien Library Management System) was first developed by Lothlorien Software in 1981. The system was quite a popular choice among teacher librarians in the mid-1980s but is now installed in just four school libraries, all but one of which is in NSW. In her 1993 return, Tillie Eakin of Lothlorien Software was critical of '...some of the mandatory requirements laid down in the NSW tender document' for the development and supply of school library automation software for government schools and says that the company now targets corporate and special libraries as its main market for the system.

BOOK Plus from Stowe Computing Australia is installed in three joint-use libraries, all of which include a secondary school or senior college library. Formerly called BOOK, the software underwent major re-development before BOOK Plus was released onto the market in 1986. The system has had particular appeal to school libraries in multi-library environments and is currently undergoing migration to client/server technology which may result in a broadening of its appeal to the school library market. The first client module due for release is a GUI OPAC.

GEOGRAPHICAL DISTRIBUTION OF AUTOMATED SYSTEMS

Table 10 shows that the 'most automated' state/territory in Australia is NSW where 94 per cent of school libraries are automated. The ACT follows very closely with 93.4 per cent of schools automated. As previously noted, the percentage of school libraries with automated systems has risen sharply in the last two years. Many of the remaining schools are small and may have settled on an alternative to integrated software. For example, the percentage of 'automated' Northern Territory schools increases from 47.1 per cent to 61.5 per cent when AGAMA sites are included. Similarly, the percentage of automated Queensland school libraries climbs from 45.6 per cent to 64.8 per cent when Code Catalogue installations are considered. The very high figure for NSW can almost certainly be attributed to the 996 smaller schools in the NSW Department of School Education which received OASIS Library in the 1994-1995 period. Many similar sized schools in other educational systems are still to be automated or have settled on an alternative to integrated software.

Table 10: Number/percentage of automated school libraries in each state/territory of Australia as at 31 December 1995

State/ Territory	Total Number of Schools*	Number of Automated School Libraries	% of Automated School Libraries
NSW	3055	2872	94.0
ACT	137	128	93.4
SA	853	679	79.6
VIC	2386	1511	63.3
WA	1018	536	52.7
NT	174	82	47.1
QLD	1725	787	45.6
TAS	300	128	42.7
TOTAL	9648	6723	

Table 11 shows total installations of each automated system for each state and territory of Australia as at 31 December, 1995. Clearly, Victoria is the most 'cosmopolitan' state in terms of library automation software with no less than 19 systems represented. Of these, two (MacBee Library System and ROS Library System) are found only in Victoria while three systems (Books, Imagine and SIRCAT II) are almost exclusively Victorian recording only one installation outside of that state. The vast majority of Mac'n Library (95 per cent) and Ocelot Schools (96 per cent) sites are also located in Victoria. Only three systems (Book Mark, CSL Library Pro and OASIS Library) are represented in all states and territories of Australia.

Table 11: Number of automated systems per state/territory of Australia as at 31 December 1995

SYSTEM	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
AIMS	–	20	–	68	–	–	20	–	108
Biblios	1	–	–	–	–	–	–	–	1
Book Mark	2	30	3	115	482	17	228	35	912
Book Plus	2	–	–	–	1	–	–	–	3
Book Worm	–	2	–	–	–	–	–	–	2
Books	–	1	–	–	–	–	28	–	29
CSL Library Pro	2	15	9	6	4	3	57	3	99
Data Research	–	–	–	–	–	–	–	–	0
Data Trek	–	–	–	–	–	–	–	–	0
DOBIS/LIBIS	–	–	18	–	–	–	–	–	18
Dynix Scholar	–	–	–	7	146	96	102	12	363
ELM	–	–	–	–	–	–	–	21	21
Imagine	–	–	–	–	1	–	8	–	9
Inmagic Plus	–	–	–	–	–	–	–	–	0
IntLibManSys	–	3	–	–	–	–	1	–	4
Libraries 2000	–	–	–	4	–	–	4	6	14
MacbeeLibSystem	–	–	–	–	–	–	23	–	23
Mac'nLibrary	–	–	–	–	–	5	93	–	98
Metamarc	8	12	–	3	2	–	25	–	50
Microfusion	–	–	–	5	25	1	64	440	535
MOLLI	–	2	–	–	1	1	5	7	16
MUSAC Library	–	6	–	–	–	–	–	–	6
OASIS Library	111	2698	33	548	9	2	337	12	3750
Ocelot Schools	1	6	3	2	1	–	356	–	369
PC School Lib	–	16	–	22	7	–	–	–	45
Prolib	–	58	16	6	–	3	55	–	138
ROS Lib System	–	–	–	–	–	–	18	–	18
SIRCAT II	–	1	–	–	–	–	79	–	80
URICA 2000	1	2	–	1	–	–	8	–	12
Winnebago	–	–	–	–	–	–	–	–	0
Total	128	2872	82	787	679	128	1511	536	6723

AUSTRALIAN SYSTEMS OVERSEAS

Four vendors of Australian designed systems reported installations in school libraries overseas. Book Mark, Book Plus and Metamarc all reported a small number of overseas installations, while Softlink Australia reported a total of 545 OASIS Library sites in overseas schools made up of 372 installations in the UK and Europe, 100 sites in New Zealand, 42 in the USA, 13 in South-East Asia, 11 in Papua New Guinea, five in South America and two in Fiji.

FOREIGN LANGUAGE/MULTILINGUAL CAPABILITIES

Eight vendors reported that their systems had a foreign language or multilingual capability. Generally, multilingual capability allows users to change the language of the screen display on the terminal they are using. Users may also be able to define their own languages if the language uses Roman notation. Softlink Australia reported that some users of OASIS Library, for example, have defined various Aboriginal dialects, while others have redefined the screen prompts to suit their individual work environments. Table 12 lists those systems which have these capabilities and the languages they have available.

Table 12: Foreign language/multilingual capabilities

System Name	Languages Available
Athena	Spanish
Biblios	Any foreign character set including Roman alphabet languages and languages based on Kanji characters, e.g. Chinese and Japanese
Book Plus	French and German
Dynix	Chinese, Japanese, Korean, Thai, German, French
Microfusion	Bahasa Malay
OASIS Library	Arabic, Bahasa Malay, French, Gaelic, Icelandic, Spanish and Welsh
URICA	Any Roman alphabet language plus Chinese and Japanese
Winnebago	Spanish

CONCLUSION AND THE FUTURE...

The purpose of the surveys of school library automation was to provide interested readers with some basic descriptive data about the market share and geographic distribution of automated systems in Australian school libraries. The administration of these surveys and the interviews with and feedback from vendors, teacher librarians and other interested parties, has allowed for some analysis of trends in the data over time. A number of emerging issues of interest to both vendors and practitioners alike include system migrations, union catalogues, integrated school networks (LANs), the effects of the changeover from AUSMARC to USMARC and the future introduction of CE (Curriculum Enhanced) MARC.

While predicting the future is a hazardous pastime (particularly with regard to information technology), some trends have emerged from this series of studies. The most obvious of these is the issue of system migrations. Many school libraries have outgrown their first generation library automation system and are actively seeking a replacement. A study of these migrations would in itself form the basis of an interesting research project. What is the extent of this phenomenon in the mid-late 1990s? Are there any discernible patterns in the migrations? What reasons do teacher librarians have for seeking a change and what are the practicalities involved in moving to a second generation system?

An important issue for vendors is that of market saturation. Will the policy of 'recommended' and/or 'preferred' library automation software be maintained and if so will schools in some educational systems continue to be limited to the use of one system? Will Australian vendors continue to seek markets outside Australia? One likely outcome of a market characterised by a need for second generation library automation software in concert with a rapid decline in the availability of new sites is that the number of vendors in the market will begin to contract even further.

On the positive side, there have been some exciting developments in library automation systems and related software, particularly in the areas of OPAC design and multimedia capability. Seamless integration of information technologies in the virtual library is not here yet but the signs are encouraging!

CONTACT INFORMATION FOR VENDORS OF AUTOMATED SYSTEMS

AIMS
Concord Data Solutions Pty Ltd
PO Box 1254
Milton QLD 4064
008 773254
email: concord@thehub.com.au
URL: http://www.concord.com.au/

Athena
Skaha Pty Ltd
PO Box 433
Harbord NSW 2096
(015) 490 860

Biblios
QANTEL Australia Pty Ltd
PO Box 68
St Leonards NSW 2065
(02) 438 1588

Book Mark
The Book Mark Project
PO Box 75
Ingle Farm SA 5098
(08) 262 7751
email: BOOKMARK@NEXUS.EDU.AU

BOOK Plus
Stowe Computing Australia Pty Ltd
208 Greenhill Road
Eastwood SA 5063
1800 088 117

Book Worm
Orana Home & Business Centre Pty Ltd
52 Church Street
Dubbo NSW 2830
(068) 84 4200

Books
Sandhurst Computer Services Pty Ltd
24 Curtin Street
Bendigo VIC 3550
(054) 43 3561

CSL Library Pro
Chancery Software Pty Ltd
57 Wentworth Avenue
Sydney NSW 2000
1800 814 119

Dynix Scholar
Dynix Australia Pty Ltd
175 Fullarton Road
Dulwich SA 5065
(08) 366 4000
email: marketing@dynix.com.au
URL: http://www.dynix.com.au

ELM
Collier Knyn and Associates
76 Mill Point Road
South Perth WA 6151
(09) 474 3188

Imagine
GUI Imagine
74 The Crescent
Sherbrooke VIC 3789
(03) 9755 2832
email: johnd@ozonline.com.au

Integrated Library Management System
Lothlorien Software
PO Box 339
Randwick NSW 2031
(02) 398 4122

Macbee Library System
Triple R Software Services
22 Calrossie Avenue
Montmorency VIC 3094
(03) 9434 2704

Mac'n Library
Tailor Made Database Co.
PO Box 277
Fawkner VIC 3060
(03) 9359 3843

Metamarc
Microskil Pty Ltd
173 Burke Road
Glen Iris VIC 3146
(03) 9576 0066
email: microskil@microskil.com.au

Microfusion
Microfusion Pty Ltd
141-143 Burswood Road
Burswood WA 6100
1800 817 640
email: mfwa@perth.dialix.oz.au

MUSAC Library
Nutshell Technologies
PO Box 1676
Bathurst NSW 2795
(063) 68 1035
URL: http://musac.massey.ac.nz/

OASIS Library
Softlink Australia
Softlink House
68 Commerical Drive
Shailer Park QLD 4128
1800 777 037
email: sue@softlink.com.au
URL: http://softlink.com.au/

Ocelot Schools
Ferntree Computer Corporation
PO Box 42
Clayton VIC 3168
(03) 9541 5600

PC School Library
Com-Assist Solutions Pty Ltd
32 William Street
Rockhampton QLD 4700
(079) 222 237

Prolib (Tasmania)
Correlations
26 Pleasant Hills Drive
Legana TAS 7277
(003) 302 487

Prolib (Victoria)
AVR Systems
PO Box 456
Hawthorn VIC 3122
(03) 9819 5056

Prolib (Elsewhere)
Infotech Education Services
PO Box 18
Beecroft NSW 2119
(02) 808 2259

ROS Library System
ROS Software Pty Ltd
6 Ambrose Street
Emerald VIC 3782
(059) 68 3891

SIRCAT II
MircoPower Pty Ltd
PO Box 170
Ivanhoe VIC 3079
(03) 9481 7444
email:
DAVIDTH@MICROPOWER.
AUST.COM

URICA 2000
Sanderson Computers Pty Ltd
103 Hoddle Street
Collingwood VIC 3066
(03) 9411 3300
email: cthewlis@ga.com.au
URL: http://www.urica.co.za/

Winnebago
Educational Media Supplies
708 London Road
Chandler QLD 4155
(07) 390 1240
URL: http://winnebago.com/

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Schools Australia 1994 Belconnen, ACT: Australian Bureau of Statistics, 1994.

Schools Australia 1995 Belconnen, ACT: Australian Bureau of Statistics, 1995.

Selby, Alan. Telephone Interview, 6 April 1994.

Shelling, Jane. 'Athena: A Windows-Based Library System That Does Not Cost the Earth.' *Australian Library Journal* 45 (February 1996): 57-61.

School Library Automation In New Zealand: Results of a National Survey

Cynthia Petersen

INTRODUCTION

Unlike the Australian states the National Library of New Zealand (who offer services to school libraries) does not have preferred or recommended library management systems. Schools in NZ have always had the autonomy to choose their own computers and software but self-management of schools in 1990 has helped the process. By this time, however, there were already a few systems in schools - IES (three high schools in Rotorua), Catalist (one private secondary school in Auckland), Winnebago (won as a prize at the 1989 Australian School Library Association conference in Canberra by an integrated Catholic college in Lower Hutt, Wellington), as well as a few 'home-grown' systems.

In 1990 the National Library produced the 'green book', *Computers and School Library Management* to help schools make informed decisions on whether or not to automate their libraries. It also outlined systems available at the time. Much of this booklet drew on the Australian experience including a useful evaluation checklist adapted from the one used by the South Australian Education Department. Systems were measured against this checklist enabling schools to make their own decisions.

Computers and School Library Management has now been replaced by a series of handouts produced by the National Library Advisers e.g. from the Introduction to *Automating the School Library: The Process*:

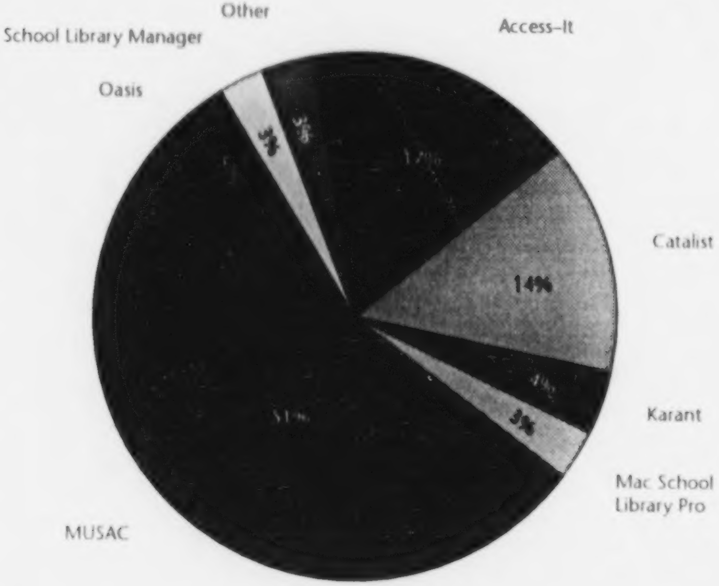
> *Automation is a project which requires a major commitment in terms of human and financial resources. It is essential that the extent of the automation process is understood before beginning the project to ensure that the best decisions are made and that the process is carried out effectively*

Information Expos initiated by the National Library around the country also provide opportunities for schools to look at automated systems as well as other developments in information technology. Now, of course, there are a variety of established sites for school representatives to visit in order to discover the degree to which any system under examination might satisfy their particular requirements and to ascertain the efficacy of available support for the system.

In 1995 there were 2,800 registered schools in New Zealand, a high proportion of these being small schools in rural areas. As far as we can ascertain 1080 of these have automated library systems (38.5 per cent).

The following information is supplied by the software companies who completed a questionnaire and sent their list of school clients.

Figure 1: Percentage of market share of integrated automated systems in NZ school libraries as at 31 December 1995



Massey University School Administration by Computer (MUSAC): (517 primary and secondary school sites). First introduced in 1989. Market leader due to its administration program being installed in many schools. Telephone help desk; regular updates and user group notes. Supports NZBN amd SCIS records. Windows version due in 1996. A New Zealand system.

Access-It: (171 mainly primary school sites). Released late 1994. Support provided by resellers who are in turn supported by the software developers. Informal user groups. Supports NZBN records. MAC and IBM versions are available. The only Windows program currently on the market. A New Zealand system.

Catalist: (145 primary and secondary school sites). Modular. Help desk facility provided by phone/fax/e-mail with dialup capability. Self-organised user groups. Pre-loaded data base of cataloguing records. Supports NZBN records. Operating system: MS-DOS. A New Zealand system.

OASIS Library: (108 mainly secondary school sites). Introduced to NZ in 1991. Support provided from Christchurch, Wellington and Auckland. Five user groups who meet regularly. Supports NZBN and SCIS records. MS-DOS. An Australian system.

Karant: (40 primary and secondary school sites). First introduced in 1988. Sites now mainly confined to the Hawkes Bay area where the support is available. MS-DOS. A New Zealand system.

Mac School Library Pro: (32 primary and secondary school sites). First introduced in 1989. Macintosh system originally developed in the United States. Since this survey was completed, the support has moved from Sydney to Canada.

School Library Manager: (29 primary school sites). First introduced in 1990. Sites in the Canterbuty/Otago/Southland regions. MS-DOS. A New Zealand system.

Other Systems:* Bliss (11); Integrated Education Software (IES) (10); Heritage (5); Flexischool or Infocat (3); Winnebago (2); Ocelot (2); Pinpoint (2); Dynix (1); Inmagic (1), and; Foxpro (1).

* Every endeavour has been made to obtain accurate figures and names of systems.

ISSUES

The question about universal cataloguing records remains - do you accept what is on the records and speedily input the information? Do you purchase the records and do some editing to suit your school (hopefully you will be pretty quick at this) or do you do your own thing and have it exactly tailored to you school's requirements? With resource-sharing between schools becoming more common it will be necessary to enhance cataloguing records e.g. curriculum area suitable for, level, and so on. The Library of Congress is at present looking into enhanced USMARC records e.g. a field for curriculum objective and related information.

NZ primary schools use *Numerical and Alphabetical List of Subject Headings* (NASH). Most secondary schools use *SCIS Subject Headings List* (3rd edn.) which includes New Zealand headings e.g. Maori and its subdivisions, New Zealand and its subdivisions, e.g. Treaty of Waitangi.

There is no perfect system. There is not a school which has not had a problem with either the program installed or support or both. Updates can cause problems because of the extra memory required; sometimes there have been so many changes that schools have had to relearn the program. For all that we must look on the positive side - we, the producers and the clients are all on a learning curve - just think back 15 years? We have come a long way in that time.

Above all we need systems that are easy to use - no distinction between a keyword or subject heading (as far as schools are concerned they are one and the same) and more use of natural language. If we do not use terms that students and teachers use then access to the collection will be limited. There should be input from teachers and students as to what words should be used. Some New Zealand schools have had bad experiences with non teachers deciding on keywords e.g. in 1993 a Task Force Green worker (a scheme for the unemployed) decided on the following keywords/subject headings for the Collins Eyewitness Guide 'Early People': - History, Old Age, Old People, People. A knowledge of the curriculum and how the resources are going to be used is of prime importance if you want resources found quickly. Keyword staff meetings can be a fun way of making those decisions.

In conclusion, an electronic library system is never completely accurate and up-to date - it is forever evolving and changing. It is for the school, an example of a working data base that students and teachers can use for location of information.

CONTACT INFORMATION FOR VENDORS OF AUTOMATED SYSTEMS

Access-It
Apple Education Centres (Mac version)

Datastream Computer Systems (IBM version)
Level 1, 57 Willis St
PO Box 14-328
Wellington
ph 04 472-9170 fax 04 472-9520

Moonlight Publishers Ltd (both versions)
PO Box 14-328
Wellington
fax 04 384-5654

Catalist
Bob Pearson
Co-ordinator - Support Services to Libraries
Contec Data Systems
PO Box 8035
Christchurch 2
ph 03 338-0399 fax 03 338-3670

Heritage
Graham Keys
Heritage Library Management Systems (NZ)
PO Box 45-010
Te Atatu Peninsular
Auckland
ph 010 649 834-5396 fax 010 649 834-5396

IES
Robin Tinker
Precision Computer and Software Int Ltd
PO Box 1490
Rotorua
ph 07 348-4585 fax 07 346-1272

Mac School Library Pro
Chancery Software Pty Ltd
57 Wentworth Ave
North Sydney N.S.W. 2060
Australia
ph 0061 0800 44 2274 (toll free)
fax 0061 2 211-0944

MUSAC
Tim Harper
MUSAC
Massey University
Private Bag 11222
Palmerston North
ph 06 350-5018 fax 06 350-5619

OASIS Library
Bruce Hitchens (agent for the South Is)
Pentacom Systems Ltd
PO Box 3959
Christchurch
ph 03 338-0483 fax 03 338-0469

Nolene Cummings (agent for the lower half of the North Is)
Cummings & Partners Ltd
PO Box 27-405
Wellington
ph 04 384-6266 fax 04 384-1898

Greg Hollier & Associates (agent for top half of the North Is)
Oasis Library Software
PO Box 29 119
Epsom
Auckland
ph & fax 292 7117

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Responsive Information Environments: Effective and Affective User Education Strategies for School Libraries

Kylie Hanson

LIFELONG LEARNERS

During the past two decades methods of teaching and learning have become increasingly cognitively oriented. This is because of the national curriculum's call to develop lifelong learners, students who have responsibility for their own learning and motivation. Teachers and developers of curriculum are trying to engage learners in more meaningful tasks and hence more meaningful mental processing. There has been a shift in focus from the inputs of education to the outcomes of education, which are now being expressed more sharply in terms of the skills individual students should acquire to become lifelong learners.

INFORMATION LITERACY

Literacy attainment has long been a benchmark for evaluating schools. The concept of literacy has broadened to include information literacy, and today's schools are recognising the need to extend information literacy provision to the whole curriculum in order to broaden the scope for effective use of information by students.

Integral to the delivery of an effective curriculum are the skills for information management from a multitude of sources. Teacher librarians, because of their expertise in organising and accessing information, are uniquely positioned to make a vital contribution to the achievement of information literacy for members of their school communities.

THE INFORMATION ENVIRONMENT

Schools are important sites for preparing students for complex problem solving in a global setting, in a future where computers and information will be essential for survival and success.

With technology having a great influence on our lives and with a quantum increase in the amount of available information, strategies to ensure equity of access to information in all its forms must be developed. This becomes essential when consideration is given to the following curriculum requirements:

- students undertake studies from a wider range of curriculum areas, including computing and technology
- teaching strategies which place greater emphasis on applications to real life settings and independent research
- greater use of projects, performances, folios, and so on, in the assessment of student work.

LEARNING METHODOLOGY

The idea of knowledge being constructed by the student shows appropriate respect for the intellect of the learner and reflects the subjective and evolutionary view of knowledge. The student in such a view, is not a passive recipient of data but a constructionist trying to understand the world.

The curriculum should be providing opportunities for learners to have meaningful experiences, to make personally significant connections, to develop mental models, and to collaborate with others in an enriched teacher supported social setting.

A re-examination of learning and its processes will therefore result in the following:

- individualised instructional methods will be frequently used
- where the instruction is self-paced and individualised, reliance will be placed on the student having a reasonable level of literacy and mastery of information processing skills
- teaching resources will become learning resources
- teachers will use a wider range of techniques and strategies
- students will have greater responsibility in the management of their own learning.

A LEARNING CULTURE

Teacher librarians have long recognised the potential of school libraries to nurture the type of learning culture which provides opportunities for learners to develop cognitively as well as culturally, socially, affectively and technologically.

This contribution to learning will occur most profitably when all members of schools' educational teams view teacher librarians as natural and active partners in the educational process. By exploring ways in which the teacher librarian can effectively contribute to the delivery of the curriculum, it is possible for schools to create synergistic environments where the teacher librarian, teachers and students work together to develop self directed independent lifelong learners and consumers of information. Teacher and student involvement with the library and the teacher librarian will be seen as central to learning within the school.

THE TEACHER LIBRARIAN

The contributions, managed by the teacher librarian include, but are not limited to, the following:

- the library provides a meaningful framework for the knowledge and information needed in all key learning areas
- the library constitutes an ideal environment for problem solving within its vast information storage
- students can obtain problem solving and information handling skills from the teacher librarian
- the library provides a natural environment for lifelong learning. [1]

These contributions by teacher librarians are possible in schools with strong academic leadership that challenge old stereotypes and moulds, and which devise the means to fully and effectively use library resources and services.

WHY USER EDUCATION?

There is no place for user education that aspires to turn library users into pseudo cataloguers. Teacher librarians now require access to models of user education that will deliver conceptual instruction that can then be transferred by the user to other information seeking situations.

Growth in the capacities to store and access information, to collect and present it in many and varied forms, and to apply to it techniques of analysis and research has led to work practices and organisational structures which now depend on these capacities. The processes for gathering and managing information are a critical part of the educative process, and are now more important to successful participation in education than at any time in history.

Users, whether staff or students, must develop mastery of the processes for gathering information. Being successful in one's early efforts to locate information is a great motivation for self directed learning. [2]

Automation of school library collections includes the provision of online public access catalogues (OPACs), which form one of the most important information access tools available to school library users.

WHAT STRUCTURE FOR USER EDUCATION?

Dependency is fostered in a structure where students are shown that there is a way of discovering information, and that there are teacher librarians who know how to do so and who could be approached for help when the time came.

Educational decision making of the future must recognise that present structures are never of enduring value, and it is vital in a period of change not to focus on them, but rather on the organisation's core functions of teaching and learning. This perspective values people, community, maturation, self-esteem, relationship, respect, empathy, participation, experience and responsiveness.

School libraries need to develop strategies that embrace the shifting culture of schools as information environments responsive to the needs of their users. The concepts of information and responsiveness are essential as teacher librarians respond to the implicit challenges of use and service inherent in the automated collections that many are now managing.

SPIRAL INTEGRATED

The spiral integrated curriculum related model for developing competency in the six step information skills process recognises that the same skills are needed at all school levels, with their sophistication increasing spirally and incrementally from year to year. Such a model is critical in the development of information literacy.

Implementation of the curriculum related model requires faculty cooperation and faculty members authority for when instruction is received and for who receives it. I find this approach inconsistent with the demands for information literacy, as it is possible under this model for some users to have their instruction delayed.

LIFE DECISIONS AND RECREATION

Users of school libraries have life decision and recreational information needs that are not linked to the curriculum. In order to be responsive to these needs schools should develop strategies that create opportunities for independence at locating information in library collections as soon as possible, not just to satisfy curriculum needs, but to lay the foundation for knowledgeable library use, so that users will be able to use information effectively.

THE FOUNDATION COURSE: A TEAM APPROACH

The model used in 1996 for implementing the Glen Innes High School Library Foundation Course was by far the most successful to date at that school. In response to the demands of an information curriculum the school community was not only recognising, but also valuing the contributions managed by the teacher librarian. As the teacher librarian I held an Advanced Skills Teacher (AST) position with responsibility for literacy. I shared this responsibility with two other members of staff and together we explored options and opportunities that would allow users mastery in navigating their way around our library.

GOALS OF THE FOUNDATION COURSE

The following goals are taken from 'The Gateway', designed by the Ohio State University Library administration and staff as a front end to the library's online catalogue to provide guidance to users to:

1. find, evaluate, and select materials to meet their needs regardless of format
2. access and integrate the content of the online catalogues easily; and
3. apply information-seeking and critical thinking skills independently. [3]

The concepts underpinned by these goals are important outcomes for school library user education programs and can be successfully linked to the Foundation Course. Students must become independent learners to be lifelong learners.

HANDS ON

It was unanimous that the opportunity to engage in the Foundation Course needed to be available as soon as possible for new enrolments, and that the methodology needed to be hands on instruction rather than demonstration.

Hands on instruction allows users to interact with the systems in the library introducing an element of uncertainty, because the instructor is not the sole focus of attention. This methodology is underpinned by a constructive philosophy that shifts the emphasis from teaching to learning and the condition of learning.

BARRIERS TO EFFECTIVE INSTRUCTION

Making time for instruction is critical. Any organisational/contextual barriers to effective instruction must be overcome. Barriers commonly include the number of available OPACs and the number of expert users who are willing to provide instruction. The number of OPACs available for hands on instruction (five at Glen Innes High School Library) was all the rationale the literacy team required to negotiate a change of structure to allow the Foundation Course to be implemented.

The objective was for every Year 7 student to have completed their library foundation course by the end of Week Two, Term One. Tutorial sessions, limited to 15 participants, were implemented and each group was rotated through two half day sessions. Staff cooperation was essential as our strategy was to simply split the five core Year 7 classes in half, half participating in the foundation tutorial and half remaining with their teacher.

In addition to organisational/contextual barriers, teacher librarians must also work toovercome intellectual barriers. The most frequent intellectual barrier to effective instruction is limited mental models of information-seeking-and-use systems. [4] Students' prior learning must therefore be identified and incorporated within the construction of any new knowledge.

TL INTENSITY

The only disadvantage with the 1996 model at Glen Innes High School was the intensity of the involvement of the teacher librarian. Strategies to overcome this concern are readily available, and include the utilisation of either peer instruction, or instruction shared by teaching colleagues. My preferred strategy would be to utilise the expertise of the school executive, releasing them to take responsibility for one tutorial group of about six students, and to provide the hands on instruction. This option has three immediate advantages:

1. students observe and interact with a variety of teaching staff demonstrating information seeking behaviour, not just the teacher librarian
2. the reduced ratio of students to teacher actively supports the pedagogy of hands on as the teacher can usefully assist students when questions and problems arise
3. it reinforces the fundamental role of the library and its strategic position in the curriculum in the minds of colleagues.

ESSENTIAL LEARNING

The foundation model was documented as essential learning at Glen Innes High School and formed the first thread in the integration of information literacy across the curriculum.

The collaborative development of this strategy created consensus and community feeling for the library and its contribution to educational outcomes. Library goals and objectives became clearer to colleagues thus increasing both material and emotional support for programs and people.

OTHER USERS

Newcomers arriving throughout the year are provided with a general library tour as part of their orientation to the school. Special services are provided for new users, staff and students, not included in the Year 7 cohort.

A calendar of foundation tutorials is developed and promoted for the year. A library invitation is attached to the school enrolment form, which invites new students to visit the library and elect, from the predetermined schedule, a time to attend a foundation tutorial. Participants are listed for staff information and release from class to attend is automatic.

Any potential users who do not respond to these strategies are followed up by the teacher librarian, with the help of enrolment reports generated from the administration system.

THE INFORMATION CURRICULUM

Weisburg and Toor detail ten concepts that they see as being at the core of the information curriculum, and essential for understanding and using libraries. The concepts are:

1. a shared pool of materials benefits everyone;
2. library materials are arranged by subject;
3. reference materials are available for all subjects;
4. recognition of the arrangement of a resource speeds access to its information;
5. indexes are the major key to locating information rapidly;
6. not all information is equal;
7. timeliness of information is an important consideration;
8. information may carry bias;
9. research requires both thinking and communicating;
10. voluntary reading is a basis for building knowledge. [5]

Whilst several of these concepts are beyond the scope of this chapter, they do provide a fundamental basis for building a curriculum that is committed to improving information use.

SHARED RESPONSIBILITY

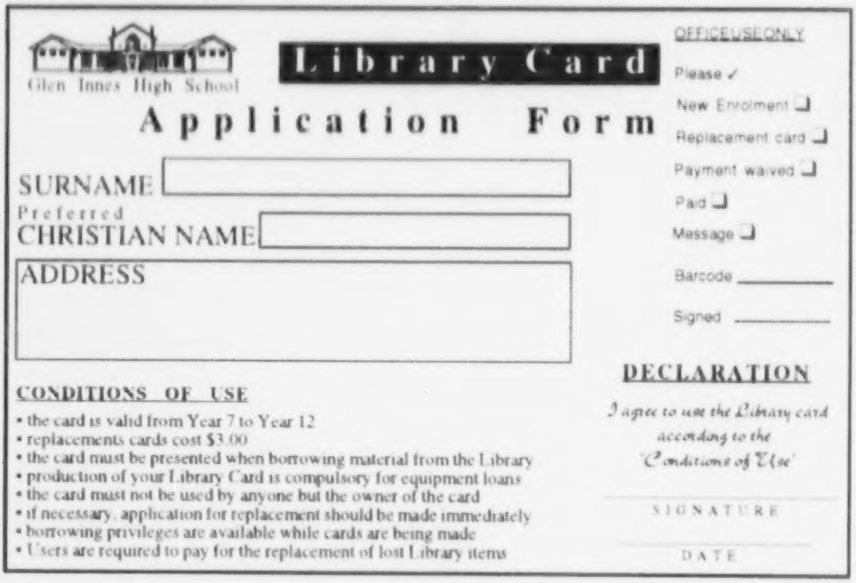
Concept One of the information curriculum concerns cooperation. Most advantage will come when participants recognise that they, as individuals do not own the resources in the library but have an obligation to share them.

An effective strategy to achieve this concept was based on the idea of membership, where students were considered to be important individual stakeholders participating in a service that they understood and belonged to.

LIBRARY CARD

Every student who wishes to utilise library services at Glen Innes High School is required to complete and sign a library card application form.

Figure 1: Library card application form



Glen Innes High School

Library Card

Application Form

SURNAME

Preferred
CHRISTIAN NAME

ADDRESS

CONDITIONS OF USE

- the card is valid from Year 7 to Year 12
- replacements cards cost $3.00
- the card must be presented when borrowing material from the Library
- production of your Library Card is compulsory for equipment loans
- the card must not be used by anyone but the owner of the card
- if necessary, application for replacement should be made immediately
- borrowing privileges are available while cards are being made
- Users are required to pay for the replacement of lost Library items

OFFICE USE ONLY

Please ✓

New Enrolment ☐

Replacement card ☐

Payment waived ☐

Paid ☐

Message ☐

Barcode ____________

Signed ____________

DECLARATION

I agree to use the Library card according to the 'Conditions of Use'

SIGNATURE

DATE

The development of the application form was a collaborative effort with input from staff and students, and has progressed through a number of versions. From their participation in the foundation course students understand the conditions of use and at the same time value the library operating premise that *users were more important than systems*, and that any conditions were negotiable.

AFFECTIVE FEATURES

The fact that students were required to 'sign' the declaration agreeing to abide by the conditions of use was a powerful strategy, combined with the fact that the application forms were kept by the library, partly as a check on the number of cards and frequency of application for any borrower, and partly to reinforce student responsibility with regard to the conditions of use that they had acknowledged with their signature. Another affective feature appreciated by the students was the option to operate in the library using their 'preferred' christian name.

TECHNICAL EFFICIENCIES

OASIS Library features were utilised by including a message in the Borrowers' Details of the Circulation Module (B2-A1) to alert users that their card was ready for collection. This option was also used by library staff to check that necessary payments had been made, as the operator has the option to either delete or maintain the 'Message' each time the user's file is accessed.

OPACs AND ACCESS

As the front end to library collections, the OPAC has the potential to expand the availability of information and services. It is important that the online catalogue be developed for its instructional impact as it can be a tremendous tool for the development of higher order thinking skills. [6]

Looking things up on the OPAC is not just a mechanistic information seeking activity, rather it is a dynamic decision making activity, and among the tasks performed by the user are identifying and locating resources, reviewing them, selecting some as suitable to the need or interest, and using retrieved data to modify or continue a search strategy. [7]

My own observations of users have confirmed that, in spite of the easy-to-use search input screens and legible displays of bibliographic information, even the most experienced home computer user needs assistance to interpret and navigate the OASIS Library OPAC interface.

MENTAL MODEL

Given the variety of interfaces which users will encounter throughout their lives it is important that they learn fundamental skills and techniques applicable to all systems. Concept based OPAC instruction emphasises general organising and searching principles, rather than specific procedures/commands for doing tasks on a particular OPAC. These concepts are transferable and should result in greater user proficiency with any OPAC. [8]

Dimitroff lists eight components, or framework understandings, that combine to form a complete mental model of information-seeking-and-use systems:

1. contents of the database
2. interactive nature of the system
3. existence of multiple fields
4. knowledge of multiple fields within each record
5. knowledge of multiple indexes and/or inverted indexes
6. Boolean searching capability
7. keyword searching capability
8. use of controlled vocabulary. [9]

Dimitroff's study concluded that users with more complete mental models tend to achieve better search results.

ERGONOMIC CONSIDERATIONS

An affective strategy to facilitate minimum queues at OPAC terminals is to place the OPACs on high tables so that students conduct their searches standing up. This effectively creates a subtle message discouraging lengthy searches.

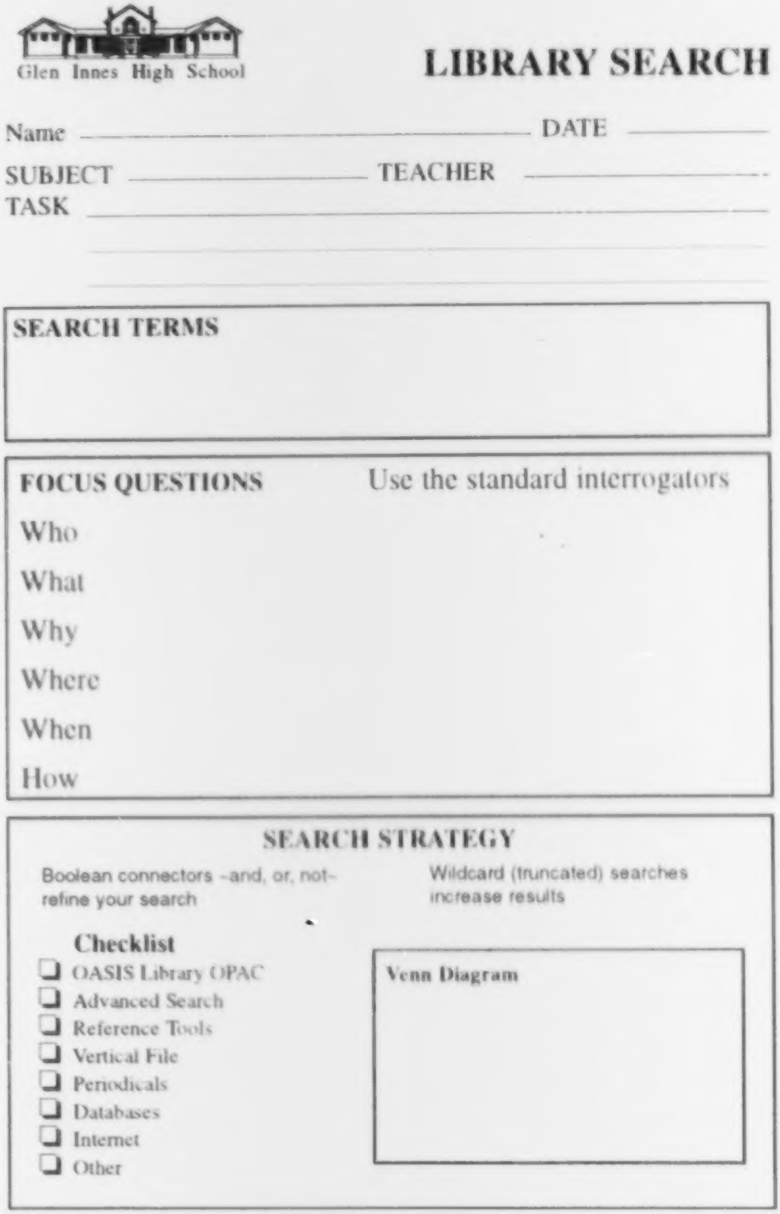
At least one OPAC should be at desk height for long searches and physically challenged users. For example, Glen Innes High School Library uses technical drawing benches which are ideal for a pair of OPAC terminals. A slight modification to the shelf allows the CPUs to be stored underneath, leaving the desktop free for monitors, keyboards, books, and so on.

ORGANISED SEARCHING

The strategy of encouraging users to formulate a probable search before going to the OPAC also has the effect of reducing the queue and therefore improving access.

Provision of an appropriate scaffold in the form of a library search form further encourages the development of the thinking processes involved in using information effectively.

Figure 2: Library search form



Glen Innes High School

LIBRARY SEARCH

Name ______________________ DATE __________

SUBJECT ______________ TEACHER ______________

TASK ______________________________________

SEARCH TERMS

FOCUS QUESTIONS Use the standard interrogators

Who

What

Why

Where

When

How

SEARCH STRATEGY

Boolean connectors –and, or, not– refine your search

Wildcard (truncated) searches increase results

Checklist

- ☐ OASIS Library OPAC
- ☐ Advanced Search
- ☐ Reference Tools
- ☐ Vertical File
- ☐ Periodicals
- ☐ Databases
- ☐ Internet
- ☐ Other

Venn Diagram

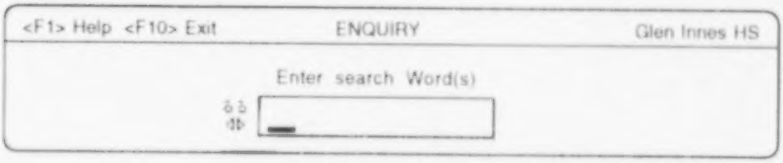
LIBRARY FOUNDATION COURSE

The following material has been developed as one part of the Glen Innes High School Library Foundation Course for user education. It addresses OASIS Library OPAC subject and keyword searching and what the information on the OPAC screens provides.

This course has been developed over four years. [10] For the purposes of this chapter I have included excerpts from the narrative which in the teaching of this program developed out of the questions and problem solving actions encountered by the users in the course of the instruction.

GETTING TO KNOW THE OASIS LIBRARY OPAC

Figure 3: Enter Search Word(s) Screen



<F1> Help <F10> Exit ENQUIRY Glen Innes HS

Enter search Word(s)

By entering a word or number you can search the entire library database in the following fields:

Subjects
Title
Names
Series
Keywords
Barcode Number
Classification Number
Accession Number

Hint: You can search on as little as the first three letters of a word.

You begin your search by typing in your enquiry and pressing <Enter>.

A successful conceptual model for novice users, when discussing the search capability of an integrated database such as OASIS Library is to visualise the search function as a busy 'pacman'. Approximately 25 per cent of Glen Innes High School students had home computers whereas all students owned, or had had significant experience with, Sega or Nintendo games. The analogy of the 'pacman', responding to commands and delivering a result, formed part of the students' prior learning, and most had well developed mental models of the pacman's capabilities. Transferring this knowledge to the concept of a relational database and the power of electronic searching was appropriate and successful.

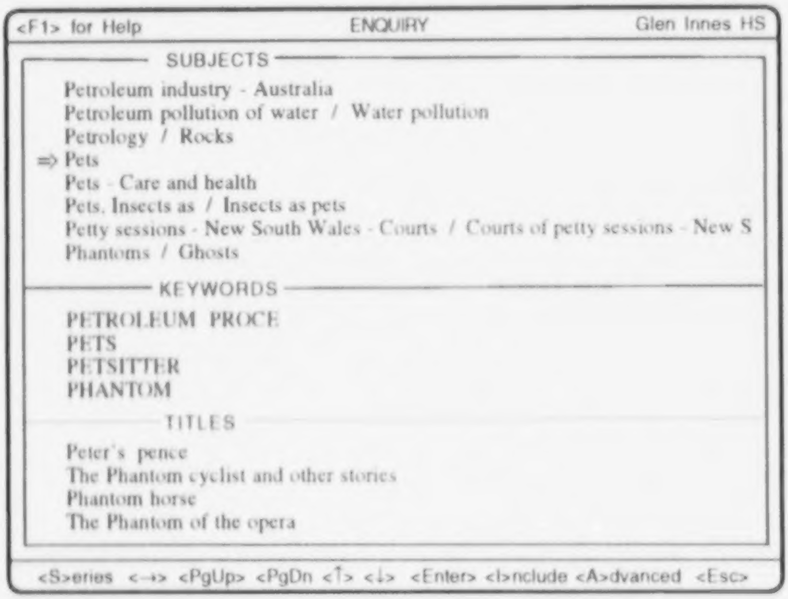
The pacman receives your instructions and runs off to check all of the information in all of the fields for a match. If the pacman finds more than one match it will always reveal the subject match first, using the flashing pointer.

BASIC ENQUIRY

Basic Enquiry, utilising a series of three screens, allows users to locate resources attached to a single search term.

Basic Enquiry 1: The Access Screen

Figure 4: The Access Screen



```
<F1> for Help                     ENQUIRY                      Glen Innes HS
  SUBJECTS
    Petroleum industry - Australia
    Petroleum pollution of water / Water pollution
    Petrology / Rocks
 => Pets
    Pets - Care and health
    Pets, Insects as / Insects as pets
    Petty sessions - New South Wales - Courts / Courts of petty sessions - New S
    Phantoms / Ghosts
  KEYWORDS
    PETROLEUM PROCE
    PETS
    PETSITTER
    PHANTOM
  TITLES
    Peter's pence
    The Phantom cyclist and other stories
    Phantom horse
    The Phantom of the opera
<S>eries <-→> <PgUp> <PgDn <↑> <↓> <Enter> <I>nclude <A>dvanced <Esc>
```

The Option Bar, the line of text located at the bottom of every screen, lists the **commands** that are available.

If there is a search match in more than one field **ACCESS** is shown in the Option Bar.

<PgUp> and <PgDn> can be used to **ACCESS** information in all other fields but in basic enquiry access is limited to the number of records within each field displayed on the OPAC screen.

DISPLAY AND REVIEW

An affective searching principle featured in OASIS Library is that the OPAC never allows a user's search to fail. Sizeable chunks of data are always available for display and review, the assumption being that something will satisfy the request to some degree, and even in its rejection provide useful information to further the search.

KEYWORD SEARCHING

The keywords field contains the main words from all the titles, as well as words tagged in Review Notes by the teacher librarian.

If you search using keyword you will probably get lots of resources listed. They may not all be relevant to your search because the OPAC may find the words in ways that you didn't expect them to be used.

As an example, try a search on the keyword 'time' to locate resources on time as a measurement. How many were relevant?

BROWSING AND RESERVATIONS

The serendipity aspect of browsing the library shelves is a strong feature of use of collections. The OASIS Library keyword search replicates this feature, perhaps unintentionally, but given the constraints of staff and time in school libraries, the number of keywords tagged to expand the relevance of a resource will remain limited.

Given the dynamic nature of the circulation of resources in school library collections, users should always balance browsing the shelves with access to the collection via the OPAC. Library policy, to be effective, needs to support OPAC use by implementing a responsive reservation service.

SUBJECT SEARCHING

Subject searching on the OPAC uses library (controlled) language supported by a comprehensive reference structure, alerting users to preferred as well as other relevant terms. Therefore, search results should always be relevant.

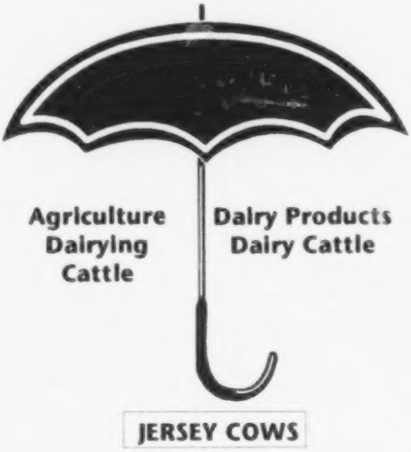
In school libraries the rule for subject searching is to start with a specific search term, and if necessary broaden your term and start again.

An information seeking conceptual strategy suitable for novice users to illustrate the broadening of subject searching is to ask them to mentally shelter underneath an umbrella with their specific search term. The shape of the umbrella stops them from shooting off in a straight line with one search term in mind in search of one resource to meet their information need (linear thinking).

LATERAL THINKING

The power of the pacman as the search tool darting off and looking at every resource in the database and quickly bringing back a result, can be used to explain the limits of linear thinking, as often the results are overwhelming. If users metacognate under the umbrella for a while and allow their thinking to slip out sideways to develop related search terms, novice users will become keyword literate with the ability to think laterally in the development of effective search strategies.

Figure 5: Mental model for lateral thinking



SEE REFERENCES

There are two types of see references in the OASIS Library system, both are identified by a / in the subject field of the access screen.

See references guide users to the preferred subject heading for the term that they have used. For example Phantoms/Ghosts represents a SEE reference indicating that

Phantoms is not a standard subject heading in this library and that resources on this topic are given the subject Ghosts.

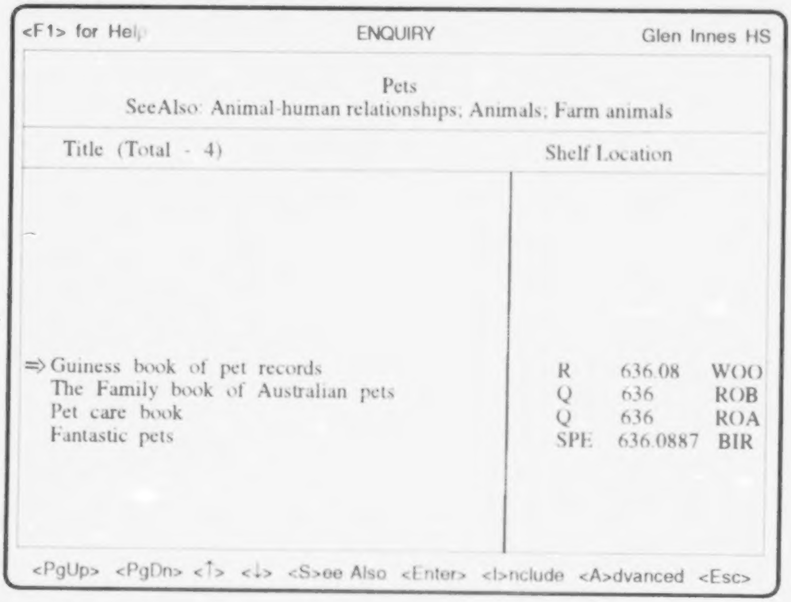
Pets, Insects as / Insects as pets is an example of a system generated SEE reference created by making each word of the subject a search descriptor.

There is no need to begin the search again. Pressing <Enter> will take you to the List screen for Ghosts.

Basic Enquiry 2: The Resource List Screen

The second screen of basic enquiry is the Resource List screen. Here you will find a list of all items in the Glen Innes High School Library collection that have the subject heading Pets, giving title and shelf location for each item.

Figure 6: The Resource List Screen



```
<F1> for Help                    ENQUIRY                        Glen Innes HS

                                   Pets
           SeeAlso: Animal-human relationships; Animals; Farm animals

   Title (Total - 4)                              Shelf Location

=> Guiness book of pet records                    R     636.08     WOO
   The Family book of Australian pets             Q     636        ROB
   Pet care book                                  Q     636        ROA
   Fantastic pets                                 SPE   636.0887   BIR

<PgUp> <PgDn> <↑> <↓> <S>ee Also <Enter> <I>nclude <A>dvanced <Esc>
```

Hint: Pressing the function key <F2> at any point in your enquiry is a shortcut to get you back to the Enter Search Word(s) screen.

LOCATING RESOURCES

Given that the shelf location is included on the Resource List Screen, some users may be tempted to finish their OPAC search at this point. Clearly they do not understand the integrated nature of the database and the fact that the OPAC can communicate adaptively in real search time with the user.

While the communication available in OASIS Library is limited the OPAC does provide some status information. Because the circulation module is integrated the user knows instantly whether the resource is available or not. The integrated acquisitions module also identifies resources that are on order.

SIGNPOSTING

Clear library signposting is critical and should be linked to the shelf location details available via the OPAC. Weisburg and Toor's second concept for using and understanding libraries stresses that subjects are the unifying principle behind library arrangement [11] and a strategy successful with novice users to explain the shelf locations and call numbers is to describe them as codes that stand for subjects.

SEE ALSO

Observe the Option Bar on the Resource List Screen and you will notice that your access has changed. Figure 6 includes the <S>ee Also option. The data listed here can be used to modify and continue the search strategy. The <S>ee Also option provides you with related terms to assist you in finding the information that you need.

PRINTING

OASIS Library will allow users to print copies of the list screens and the results of Advanced searches. <P>rint will only appear on the option bar if the teacher librarian has set the system parameter to <Y>es to allow enquiry to print.

Connecting the printer is an obvious strategy for maximising access, as users will not be required to take the time to write the citation longhand.

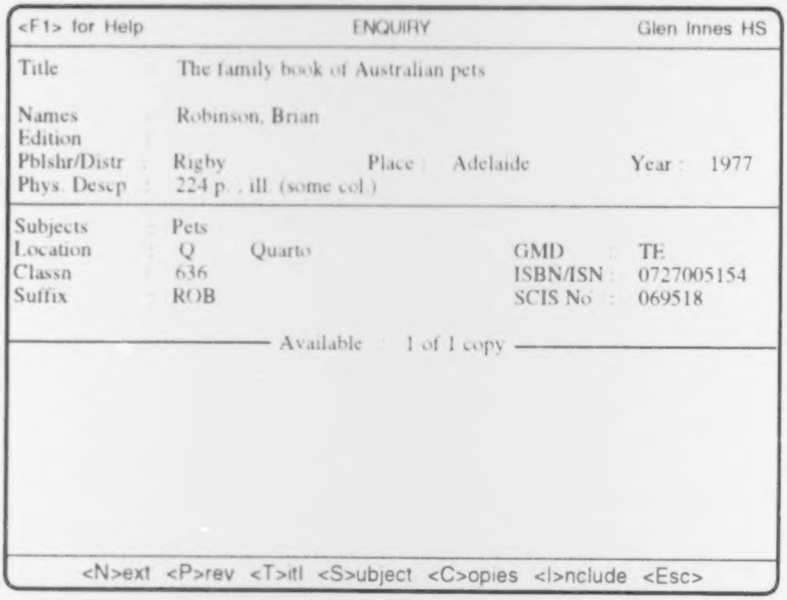
Basic Enquiry 3: The Details Screen

More information is available for each of the titles listed. Simply move the cursor next to a title you are interested in and press <Enter>.

Unique data elements are clearly labelled in the OASIS Library bibliographic record. Most labels are self explanatory and are important parts of the users prior learning which must be built into their conceptual model of the OPAC:

> *Bibliographic records are for use, not just as location devices, but as information-laden devices for furthering the search. This action role of bibliographic displays is often overlooked in system design [and in user education]. Bibliographic records can be generative; they may have a springboard effect in the search process, or serve as information 'seeds' to fertilize subsequent searching.* [12]

Figure 7: The Bibliographic Details Screen



```
<F1> for Help                    ENQUIRY                        Glen Innes HS
Title          :  The family book of Australian pets

Names          :  Robinson, Brian
Edition        :
Pblshr/Distr   :  Rigby            Place :  Adelaide          Year :  1977
Phys. Descp    :  224 p. , ill. (some col.)
Subjects       :  Pets
Location       :  Q    Quarto                  GMD       :  TE
Classn         :  636                          ISBN/ISN  :  0727005154
Suffix         :  ROB                          SCIS No   :  069518
─────────────────── Available  :  1 of 1 copy ───────────────────

     <N>ext  <P>rev  <T>itl  <S>ubject  <C>opies  <I>nclude  <Esc>
```

Content issues in particular will need to be addressed, as understanding of the information provided will enable users to evaluate the relevance of the resource to their information need, before attempting to locate the resource.

Explanation will be required for the novice user to understand that:

- year indicates year of publication and should be used as a guide in determining the age of the information
- place of publication can be important if users are seeking geographic specific information
- physical description indicates number of pages, presence and type of illustrations, etc.
- assigned subject headings have a collocative function for identifying similar or

related works, and for broadening search terms

- location, class and suffix are signposts to the location of the item in the collection
- GMD (General Material Designation) is a code to indicate the type of resource, and is important for restricting advanced search results
- availability statement to indicate number of copies and if copies are available for loan.

Hands on instruction concerning the main data elements of the details screen will facilitate user comprehension and enable accurate identification of resources and their suitability for a particular need.

Additional information is available via the option bar, and the user can open windows to reveal more information about the item such as details of individual copies, notes where they exceed a few lines on screen, additional title information such as editor or illustrator, or lists of subjects where these are too many to view on the standard screen. [13]

Bibliographic details of all items from a Resource List screen may be viewed from the Details screen by using the <N>ext and <P>rev options. This is another important browse function.

ONLINE HELP

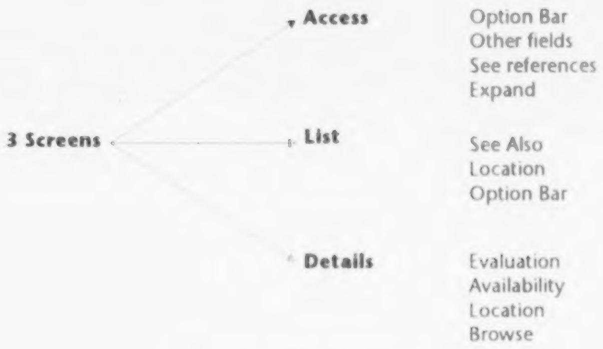
Canadian research which investigated user satisfaction with OPACs reported that 62.4 per cent of participants indicated that they learned from the OPAC, either by trial and error or online help, or both. [14]

As computer ownership and experience with other OPACs increases, it seems likely that users will rely upon learning from the OPAC. Users of OASIS Library are able to access context specific factual Help screens which are useful as reminders. Description messages are assigned to computer objects and operations, and are displayed at the users request.

This current level of useful support could be improved with the development of procedural help which supports problem solving by providing answers to questions such as 'how do I do this?' and 'why?'

BASIC SEARCH REVISITED

Figure 8: Outline of the elements of a Basic Search



BASIC SEARCH

3 Screens
Access
Option Bar
Other fields
See references
Expand
List
See Also
Location
Option Bar
Details
Evaluation
Availability
Location
Browse

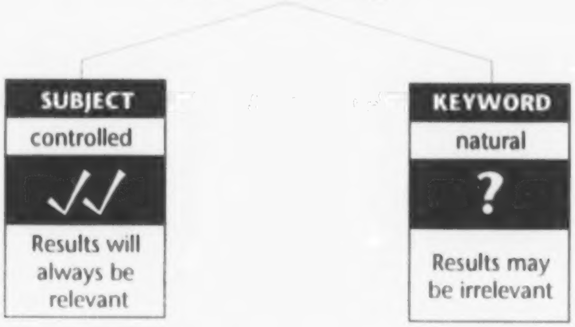
SEARCHING REVISITED

Subject searching on the OPAC uses library (controlled) language, therefore results should always be relevant.

If your search is not successful you may need to try again using broader search terms.

Keyword searching on the OPAC uses natural language and search results are sometimes not relevant.

Figure 9: Subject and Keyword searching on the OPAC



OPAC Searching

SUBJECT
controlled
✓✓
Results will always be relevant
KEYWORD
natural
?
Results may be irrelevant

THE EXPAND KEY

The expand key < → > operates from the Access Screen and opens up a window in the field where the cursor is positioned, expanding the user's access to all data in that field.

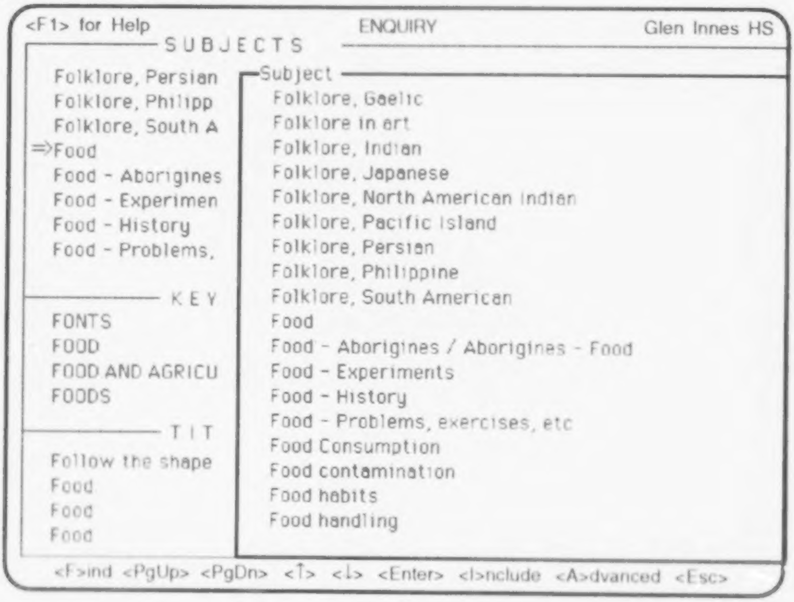
By revealing big chunks of data the expand key meets an historical need of users, to be able to browse the collection.

Users can move up and down the list using the cursor keys or by operating a <F>ind option within the window. The expand key is useful for adding to existing search terms without returning to the Enter Search Word(s) screen.

Use of this key is essential for conducting advanced searches.

Figure 10 shows what happens when you press the expand key.

Figure 10: The Expand Key



```
<F1> for Help                    ENQUIRY                          Glen Innes HS
          ---------- SUBJECTS ----------------------------------------------
  Folklore, Persian   -Subject --------------------------------------------
  Folklore, Philipp     Folklore, Gaelic
  Folklore, South A     Folklore in art
=>Food                  Folklore, Indian
  Food - Aborigines     Folklore, Japanese
  Food - Experimen      Folklore, North American Indian
  Food - History        Folklore, Pacific Island
  Food - Problems,      Folklore, Persian
                        Folklore, Philippine
  ------------- KEY     Folklore, South American
  FONTS                 Food
  FOOD                  Food - Aborigines / Aborigines - Food
  FOOD AND AGRICU       Food - Experiments
  FOODS                 Food - History
                        Food - Problems, exercises, etc
  ------------- TIT     Food Consumption
  Follow the shape      Food contamination
  Food                  Food habits
  Food                  Food handling
  Food
  <F>ind <PgUp> <PgDn> <↑> <↓> <Enter> <I>nclude <A>dvanced <Esc>
```

BOOLE

George Boole was a self taught English mathematician. In 1854 Boole published his most famous work, *An Investigation into Laws of Thought, on Which are Founded the Mathematical Theories of Logic and Probabilities.* This classic work has become the foundation of today's communication, computer and information sciences.

Boole's greatness lay in his ability to analyse and describe the mechanics of human reasoning. To Boole any mental operation was the addition or deletion of concepts to form either more complex or more simple results.

BOOLEAN CONNECTORS

Boole's connectors, 'and', 'or' and 'not' are used by OASIS Library Enquiry to manipulate information to make search results either more simple or more complex.

Figure 11: The AND Connector

AND

is the meet or intersection of the sets.
It includes members that belong to both sets

Set A = red blue yellow
Set B = blue green violet

The intersection of A **and** B is

Figure 12: The OR Connector

OR

is the addition of sets
without
repeating members

Figure 13: The NOT Connector

NOT

is the exclusion or complement of the set.

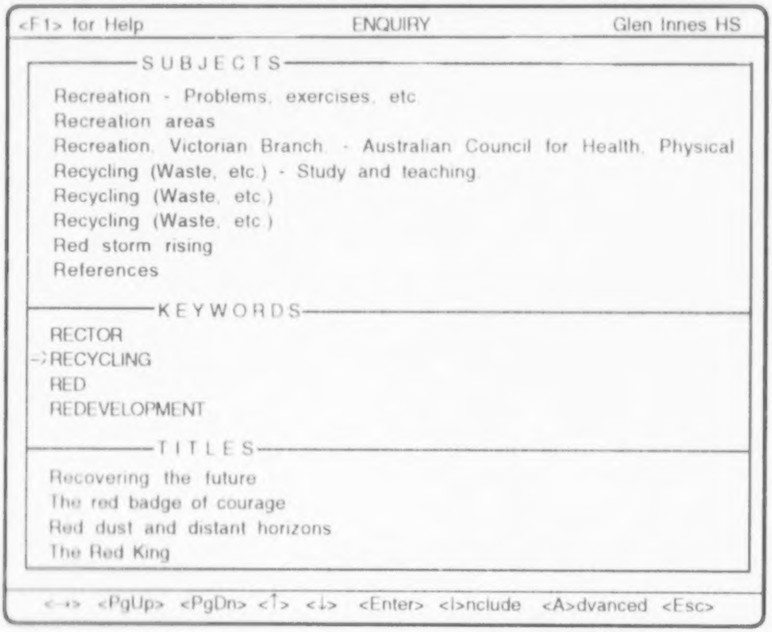
Set A = 1 2 3 4 5 6 7 8 9 10
Subset X = 2 4 6 8 10
The set of odd numbers within Set A
is the complement of Subset X
A not X = 1 3 5 7 9
Not removes some concepts from the search

Connectors are the key to manipulating vast amounts of information using technology. OASIS Library Enquiry Advanced Search can produce more comprehensive lists of resources, combining multiple search terms in different combinations using Boolean connectors.

ADVANCED SEARCH

You can use subjects, keywords or a combination of subjects and keywords when conducting an advanced search. Search terms are selected from the Access Screen by positioning the cursor against the chosen term and pressing <I> to include all of the resources attached to the term.

Figure 14: Beginning an advanced search: press <I> to include the keyword 'recycling'.

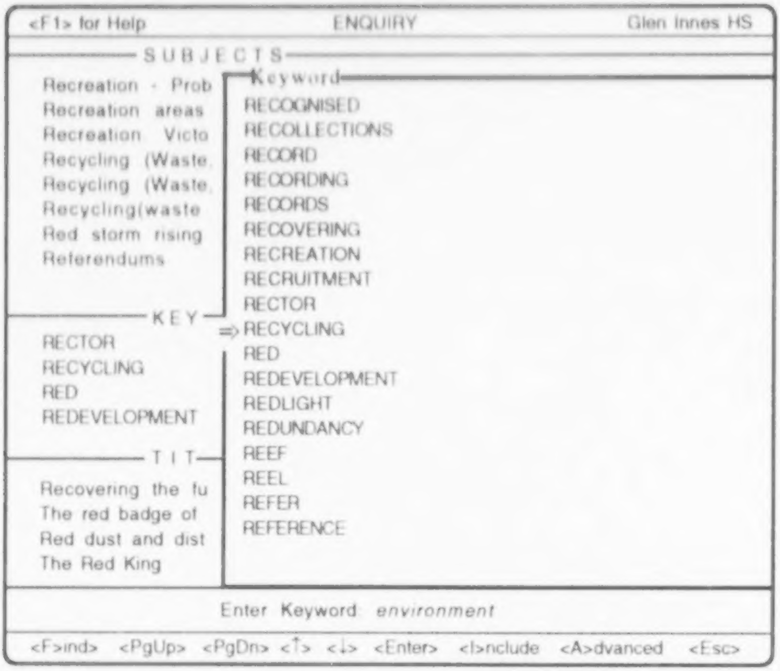


```
<F1> for Help                     ENQUIRY                      Glen Innes HS
 ----------SUBJECTS----------------------------------------------------------
   Recreation - Problems, exercises, etc
   Recreation areas
   Recreation, Victorian Branch. - Australian Council for Health, Physical
   Recycling (Waste, etc.) - Study and teaching
   Recycling (Waste, etc.)
   Recycling (Waste, etc.)
   Red storm rising
   References
 ------------KEYWORDS--------------------------------------------------------
   RECTOR
 ->RECYCLING
   RED
   REDEVELOPMENT
 ------------TITLES----------------------------------------------------------
   Recovering the future
   The red badge of courage
   Red dust and distant horizons
   The Red King

   <-→> <PgUp> <PgDn> <↑> <↓> <Enter> <I>nclude <A>dvanced <Esc>
```

Expand the keyword file < → > and using the <F>ind option <I>nclude the keyword '**environment**'.

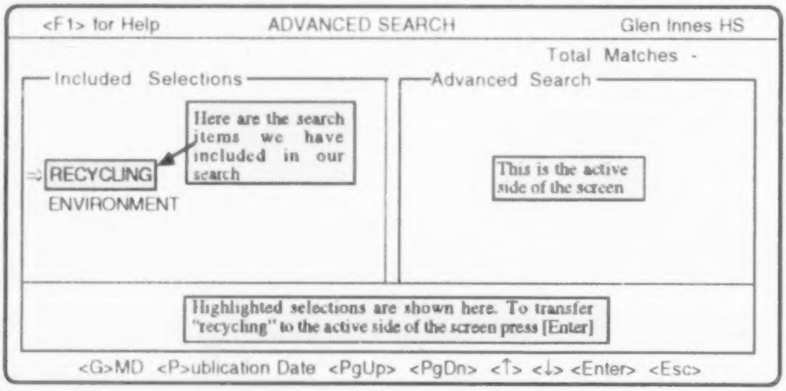
Figure 15: Expanding the file to include additional search terms



```
<F1> for Help                 ENQUIRY                  Glen Innes HS
──────────── S U B J E C T S ──────────────────────────────────────
 Recreation - Prob  ┌─Keyword────────────────────────────────────
 Recreation  areas  │ RECOGNISED
 Recreation  Victo  │ RECOLLECTIONS
 Recycling  (Waste. │ RECORD
 Recycling  (Waste. │ RECORDING
 Recycling(waste    │ RECORDS
 Red  storm  rising │ RECOVERING
 Referendums        │ RECREATION
                    │ RECRUITMENT
                    │ RECTOR
──────────── K E Y ─┘ => RECYCLING
 RECTOR             │ RED
 RECYCLING          │ REDEVELOPMENT
 RED                │ REDLIGHT
 REDEVELOPMENT      │ REDUNDANCY
──────────── T I T ─│ REEF
 Recovering the fu  │ REEL
 The red badge of   │ REFER
 Red dust and dist  │ REFERENCE
 The Red King       │
────────────────────────────────────────────────────────────────────
                  Enter Keyword: environment
────────────────────────────────────────────────────────────────────
<F>ind> <PgUp> <PgDn> <↑> <↓> <Enter> <I>nclude <A>dvanced <Esc>
```

Utilising the mental model of the search pacman, visualise him gathering every resource in the database that has your selected keyword or subject attached. The pacman will respond to multiple requests for inclusion and continue to place the resources into the advanced file, which the user must access by pressing the command <A>dvanced.

Figure 16: The Advanced Search Screen



```
<F1> for Help            ADVANCED SEARCH              Glen Innes HS
                                               Total  Matches  -
┌─Included  Selections ────────┐ ┌─Advanced  Search ───────────┐
│                              │ │                             │
│ => RECYCLING                 │ │                             │
│    ENVIRONMENT               │ │                             │
│                              │ │                             │
└──────────────────────────────┘ └─────────────────────────────┘
<G>MD  <P>ublication Date  <PgUp>  <PgDn>  <↑>  <↓>  <Enter>  <Esc>
```

Here are the search items we have included in our search

This is the active side of the screen

Highlighted selections are shown here. To transfer "recycling" to the active side of the screen press [Enter]

At this point the user has the option to restrict the advanced search by GMD, that is, type of media, and/or by publication date. If you cannot remember the GMD codes, press <G> and enter on a blank to access the window of GMD codes.

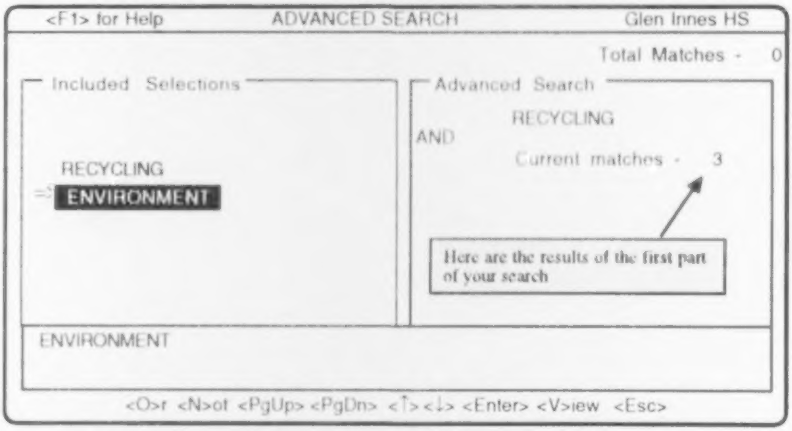
FUNCTION KEYS

Selecting <F4> while in an advanced search, will take the user to the Enter Search Word(s) screen without clearing the included selections.

Selecting <F2> while in an advanced search will take the user to the Enter Search Word(s) screen and included selections are cleared.

Selecting <ESC> will move you back one screen at a time.

Figure 17: Advanced Search in Progress



<F1> for Help ADVANCED SEARCH Glen Innes HS

Total Matches - 0

Included Selections

RECYCLING

=> ENVIRONMENT

Advanced Search

RECYCLING

AND

Current matches - 3

Here are the results of the first part of your search

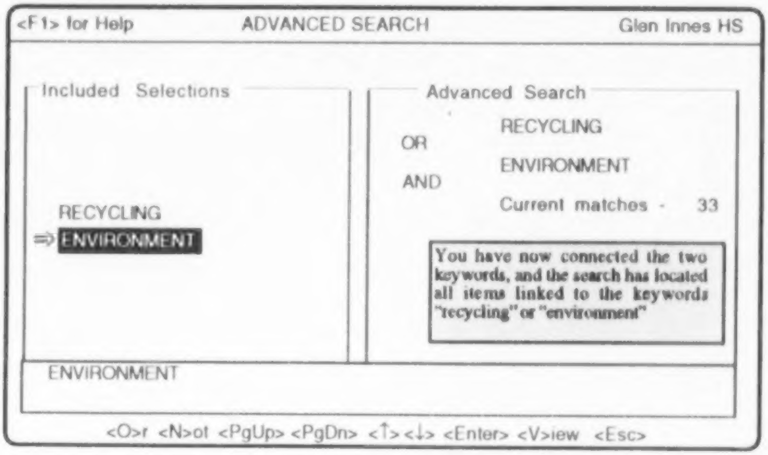
ENVIRONMENT

Notice that OASIS Library advanced search defaults to offer the AND connector, which is the 'meet' or the intersection of the set.

The option bar has changed to include the OR and NOT connectors.

A combination of subject and keyword terms can be distinguished by the text at the advanced screen, as keyword terms always default to uppercase.

Figure 18: Using the <O>r connector


<F1> for Help
ADVANCED SEARCH
Glen Innes HS
Included Selections
RECYCLING
⇒ ENVIRONMENT
Advanced Search
RECYCLING
OR
ENVIRONMENT
AND
ENVIRONMENT
<O>r <N>ot <PgUp> <PgDn> <↑> <↓> <Enter> <V>iew <Esc>

Current matches - 33

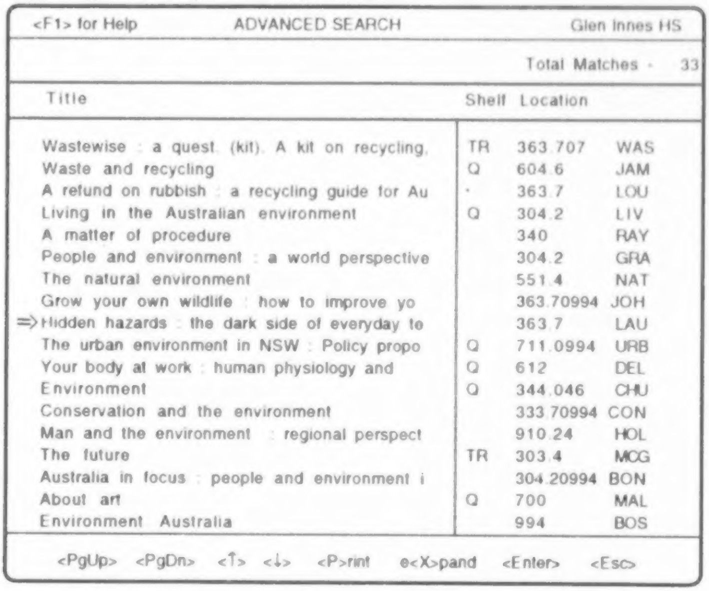
You have now connected the two keywords, and the search has located all items linked to the keywords "recycling" or "environment"

Observe the change on the active side of the screen after <O>r has been selected. As we chose not to select a GMD or publication date, this search has not been restricted.

Press <V>iew and OASIS Library displays a Resource List of all titles linked to the keywords **'recycling or environment'**.

Press <F2> to exit and clear your selections.

Figure 19: Viewing the results of an Advanced Search


<F1> for Help
ADVANCED SEARCH
Glen Innes HS
<PgUp> <PgDn> <↑> <↓> <P>rint e<X>pand <Enter> <Esc>

Total Matches - 33

Title	Shelf	Location	
Wastewise : a quest. (kit). A kit on recycling.	TR	363.707	WAS
Waste and recycling	Q	604.6	JAM
A refund on rubbish : a recycling guide for Au	·	363.7	LOU
Living in the Australian environment	Q	304.2	LIV
A matter of procedure		340	RAY
People and environment : a world perspective		304.2	GRA
The natural environment		551.4	NAT
Grow your own wildlife : how to improve yo		363.70994	JOH
⇒ Hidden hazards : the dark side of everyday to		363.7	LAU
The urban environment in NSW : Policy propo	Q	711.0994	URB
Your body at work : human physiology and	Q	612	DEL
Environment	Q	344.046	CHU
Conservation and the environment		333.70994	CON
Man and the environment : regional perspect		910.24	HOL
The future	TR	303.4	MCG
Australia in focus : people and environment i		304.20994	BON
About art	Q	700	MAL
Environment Australia		994	BOS

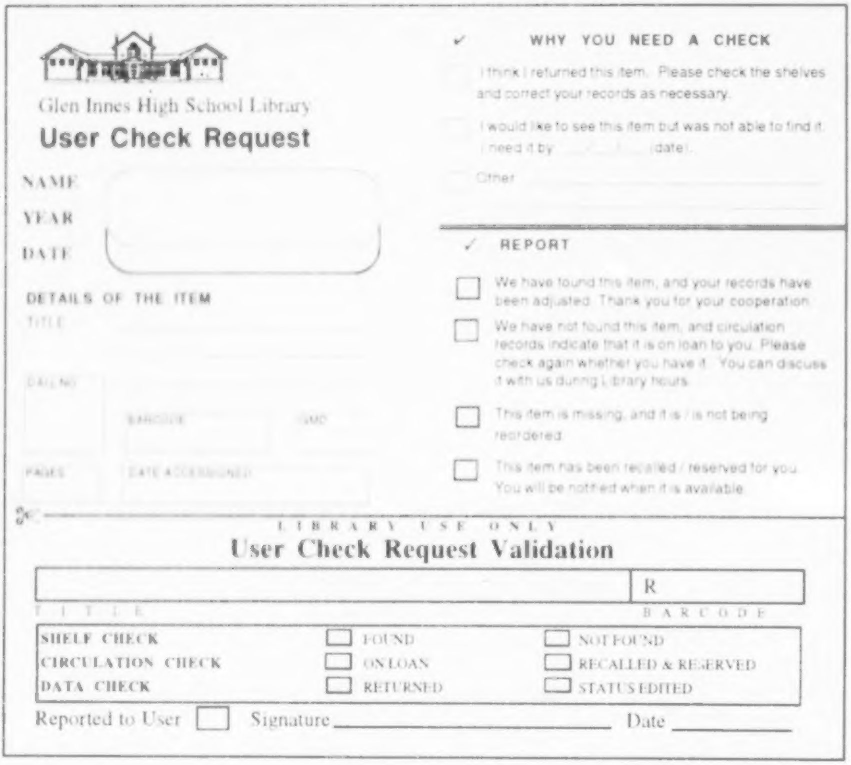
KNOWLEDGEABLE USERS

User education will produce knowledgeable users and affective strategies to support their efficient use of the library will be critical in maintaining an ongoing level of responsive service.

School environments for the delivery of information services vary significantly. Essential aspects of infrastructure like adequate staffing are often not provided, and users, mapping the information provided by the OPAC to the collection, will become frustrated if resources which are indicated as being available are unable to be located. Whether the cause is inadequate staffing or just a busy library, the service must respond to these kinds of incidents.

Users at Glen Innes High School Library are able to complete a 'User Check Request' form.

Figure 20: User Check Request Form



Glen Innes High School Library

User Check Request

NAME

YEAR

DATE

DETAILS OF THE ITEM

TITLE

CALL NO

BARCODE

GMD

PAGES

DATE ACCESSIONED

✓ **WHY YOU NEED A CHECK**

☐ I think I returned this item. Please check the shelves and correct your records as necessary.

☐ I would like to see this item but was not able to find it. I need it by ___/___/___ (date).

☐ Other

✓ **REPORT**

☐ We have found this item, and your records have been adjusted. Thank you for your cooperation.

☐ We have not found this item, and circulation records indicate that it is on loan to you. Please check again whether you have it. You can discuss it with us during Library hours.

☐ This item is missing, and it is / is not being reordered.

☐ This item has been recalled / reserved for you. You will be notified when it is available.

LIBRARY USE ONLY

User Check Request Validation

TITLE

R

BARCODE

SHELF CHECK	☐ FOUND	☐ NOT FOUND
CIRCULATION CHECK	☐ ON LOAN	☐ RECALLED & RESERVED
DATA CHECK	☐ RETURNED	☐ STATUS EDITED

Reported to User ☐ Signature ______________________ Date __________

BEST COPY AVAILABLE

This form frames a critical part of the school library service at Glen Innes High School, and all users are encouraged to contribute to the maintenance of the collection in this way.

Checks are completed by library staff on a daily basis and the top half of the form is completed where necessary and returned to the user as soon as possible.

INVESTED EFFORT

A major issue for libraries is the need for their purpose to be understood and supported by both the communities in which they function, and by those who will make crucial decisions about policy directions and resource allocations.

A great deal of effort is invested in the Library Foundation Course, to ensure individual user needs are met. Building an instructional program to deliver a responsive information environment is a powerful statement about the role and function of teacher librarians and school libraries.

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Dolphins are Never Pink: Icon Use in Interfaces for Catalogues used by Children

Judy Clayden

PROBLEMS WITH CATALOGUE USE

Recent studies of online public access catalogue (OPAC) use have highlighted the problems children of various ages face in coping with interfaces designed primarily for adults. Most interfaces are still text-based and menu-driven and require the user to respond to instructions and to enter keywords to be searched. [1] For younger children, especially those without well-developed keyboard, spelling and alphabetizing skills, this is a major source of difficulty. [2]

Facing the traditional interface also means that the OPAC user needs to understand at least some library jargon to cope with a list of possible search types. Few adults should have much trouble with defining author, title, or subject but many would find it difficult to give a clear example of the difference between a series and a serial. Neither is menu design always as helpful as it could be. Some of the research described by Hancock-Beaulieu [3] suggests that, even if one believes that subject searching predominates, OPAC menus generally present options related to known-item searching ahead of subject searching options. The unsophisticated user is not likely to understand the ramifications of the choice between searching for keywords in a range of possible combinations between title, contents notes and other specified fields and searching or browsing subject headings. [4]

The structure and use of subject headings often present difficulties for the confident user, let alone anyone without a strong vocabulary. Even if OPAC users understand the basic premises behind subject headings, they will probably encounter, in public libraries at least, the *Library of Congress Subject Headings*. Although many of *LCSH*'s historical problems of sexism, racism and American White Anglo-Saxon Protestantism have been overcome, it is still very complex and some of its headings defy easy comprehension. *Societies living in common without vows (Canon law)* or *Automobile driving on mountain roads* are beautifully specific but probably useless to anyone other than the cataloguer. Perfectly correctly-used headings, such as *Phalangeridae - Juvenile fiction* for *Possum Magic*, are not particularly user-friendly. At least the *SCIS Subject Headings List* offers a somewhat simpler alternative for school libraries.

Boolean search techniques add another layer of complication. [5] In the traditional OPAC, Boolean searching with the ability to truncate terms seems to be about as good as it gets. Described by one author as 'so unsubtle', [6] Boolean searching may be adequate as long as the terms in the database don't recur too frequently. Even in a small database, the Boolean keyword search *Australia* AND *history* is an exercise in futility.

Users may also be disadvantaged by the brevity of catalogue records. Historically, the MARC Project transformed the paper catalogue card into an electronic catalogue card. Given the capabilities of the medium as it has evolved, most catalogue records are still very brief despite the incorporation of additional access points such as ISBN, Library of Congress and SCIS numbers. Keywords from titles and contents notes usually may be searched, depending on the software used. However, access is still closely modelled on old manual approaches. [7]

Information retrieval systems are necessarily designed for an imagined prototypical user. Actual users need to conform to the designer's imaginings to be successful. [8] OPACs not based on an analysis of the ways in which users actually approach searching for information are thus likely to compound user difficulties.

DEVELOPMENTAL STAGES AND LIBRARY USE

As one might expect, children's use of libraries and catalogues is a function of age. Kuhlthau [9] uses a Piagetian framework to describe progressively increasing sophistication of library use. From this viewpoint, children aged between about two and seven are seen as egocentric. Those at school are not yet necessarily willing to focus on activities designed for them by the teacher or librarian. [10] However, children may be keen to explore the OPAC even at this early age. During his study of children's information retrieval behaviours, Solomon observed preschoolers and kindergartners who 'pretended to know what they were doing, pressing keys and sometimes watching to see what happened' even though they were unable to read. [11]

By the end of the second year of schooling, children have usually developed considerable reading and writing skills. They have also developed 'a lively imagination, an outrageous sense of humor, and a keen sense of right and wrong'... and 'should be encouraged to follow their own interests and develop meaningful questions of their own'. [12] 'Humorous or scary stories and those with surprise ends and subtle twists are especially appealing' to this age group [13] while other personal interests will lead them to conduct fairly specific OPAC searches for information about topics such as dogs, dinosaurs, karate and jokes. [14]

With increasing age comes the ability to categorize and understand classification and the capability of paying closer attention to detail. [15] Piaget's final stage of cognitive development, which he described as the formal operational stage, generally occurs in between the ages of twelve and sixteen. Reaching this stage, children become increasingly capable of abstract thought and generalization. They are able to form the hypotheses necessary for them to be able to cope with the research associated with curriculum requirements and to clearly distinguish between reading for pleasure and reading for information. [16] Exploratory behaviour at the OPAC is more likely to involve an investigation of the technology itself and the way tasks are structured, the appropriate form of search requests and the utilization of subject headings. [17]

As children develop and gain experience, their need for support in using the OPAC changes. Younger children may forget the next essential step of an inquiry, such as pressing the enter key, or may need help to recover from mistakes. Older children may need assistance with the strategies to employ in broadening or narrowing their searches. To design interfaces which offer a suitable range of support and also provide for exploration and learning is thus a major challenge. [18] Supporting the user may also require personal intervention to overcome a lack of confidence. As Kuhlthau points out: 'If children are given the impression that locating material is so simple that only a fool would have trouble, they will be embarrassed about experiencing difficulty'. [19]

DEVELOPMENT OF MORE HELPFUL INTERFACES

In addition to the other problems they cause for younger users, text-based interfaces appear decidedly dull and old-fashioned in a world which is becoming increasingly familiar with Windows, the World Wide Web and sophisticated computer games complete with colour graphics. [20] Graphics based user interfaces (GUIs) may be both attractive and user-friendly. A pointing device, usually a mouse but occasionally a finger, may be used to select actions, commands or options that are displayed on the screen as icons. [21] Concern over the difficulties faced by users of traditional OPACs has seen a number of investigations into the use of icons and graphics in the development of a range of GUIs. Icons and graphics may be used in two basic ways to enhance the presentation of OPAC information to the user and facilitate his or her interaction with the underlying system. Firstly, and most commonly, icons are used as visual representations of the commands necessary to drive the system. Secondly, icons may be used to provide subject access to the materials listed in the OPAC.

VISUAL REPRESENTATION OF COMMANDS

If text-based menu-driven interfaces cause problems for the OPAC user, graphical interfaces are not necessarily an instant solution. Harumdanis argues that no icon in a software product can be understood if it is not accompanied by some text, particularly when it is first introduced. There are no universal icons and the task of remembering more than a few is complicated by a lack of standards for icon use. [22] Her concern is shared by others. The IFLA Information Technology Section has identified several reasons why a standardised icon set for major functions and data fields of bibliographic information systems would be feasible and useful:

- individual software suppliers, wishing to retain market advantage, will develop new icons which are likely to become increasingly obscure as they attempt to be different;
- Internet access permits users to visit different OPACs;
- institutional developers are seeking public-domain icons to incorporate into their developments;
- language-and culturally-independent icons would encourage world-wide adoption. [23]

Details of the ongoing project, based at the University of Stirling in Scotland are available on the World Wide Web. [24] The project has selected a range of sample icons to represent each core function and data field. It is gathering feedback by encouraging WWW users to vote for the icons that best convey individual functions. [25]

ICONS AS ACCESS TO SUBJECT CONTENT

If it is difficult to design icons to convey commands and symbolize functions of bibliographic systems, it is extremely difficult to design icons which successfully convey anything beyond a broad indication of the subject content of library resources. The IFLA project described above is even experiencing difficulties in formulating an easily recognisable icon for subject searching. [26] It is tempting to ask if we are going back to the days of pictographs. It would not be too difficult, for example, to deal with fish as a subject. An icon for fish cookery would be reasonably easy and perhaps we could use a fish with a bandage to indicate diseases of fish, but how would we convey complex concepts such as the influence of ecotourism on traditional indigenous fishing grounds?

As language changes over time, so do the meanings attached to icons. Students of medieval literature need to be taught the iconography of the period to gain the maximum benefit from reading illustrated documents of the period. Without such instruction, they either do not acquire all the information available to them or misunderstand the content. [27] Icons may need to be redesigned in the same way that subject headings lists are revised to reflect changes in social attitudes and the use of language.

OPAC INTERFACES USING ICONS

Successful projects described in the literature utilise a varying mixture of icons and text to provide alternative OPAC interfaces. Five such projects are described below: The Science Library Catalog Project, Kid's Catalog, DRA Kids, Buchershatz and The Book House.

THE SCIENCE LIBRARY CATALOG PROJECT

The Science Library Catalog Project grew out of Project SEED (Science for Early Educational Development) at the California Institute of Technology. Project SEED consisted of hands-on science projects, science simulations and associated teacher training and curriculum support throughout the Pasadena Unified School District. It quickly became obvious that if children were to pursue discovery-based learning effectively they needed the skills to search for information that would expand their knowledge beyond classroom sessions. [28]

The Science Library Catalog was designed to demystify the Dewey Decimal System and to allow children to browse through the catalogue of a collection of science and technology materials. [29] Four versions of the SLC have been created and tested, each becoming more complex structurally, but less cluttered and more attractive visually. The metaphor used is a set of bookshelves. The hierarchical nature of Dewey is conveyed by shelves cascading to the right. [30] Students do not need keyboard skills as interaction is based on pointing and clicking a mouse. To move up through the hierarchy, the student clicks on a prior shelf still visible to the left. Book titles are listed at the lowest level of the hierarchy and clicking on any title will bring up the bibliographic record for that title. A combination of 'next book' and arrows allows the student to browse along the virtual shelves. A subsequent click on the 'library map' will show the location of the OPAC being used and the path to the item on the actual shelves. [31]

Simplification and support were also built into the SLC. Many of the terms used in Dewey were inappropriate for children younger than twelve and alternatives had to be selected. [32] As the SLC is intended to be used without prior training or printed manuals, a 'friendly bookworm' was included in all screens to offer help. [33]

SLC's developers have undertaken evaluations of each of its versions in an effort to increase their understanding of key aspects of children's information seeking and information retrieval behaviour. Comparisons with other systems were also undertaken to examine how children viewed the direct access provided by keyword OPAC searching. Children without keyboard skills were able to search the SLC without prior training and navigated successfully within the hierarchical structure. Science topics were generally handled more effectively than technology topics, a reflection of the more truly hierarchical structure in the science classes of Dewey. [34]

Continuing research based on a more advanced version of the SLC is examining a combination of its browsing features with embedded keywords. The effects of children's science and technology knowledge and their ability to manipulate hierarchies are two further topics under investigation from a 'rich set of research questions remaining to be addressed'. [35]

KID'S CATALOG

Kid's Catalog is a GUI developed by Pam Sandlian and fellow staff of the Denver Public Library because of their concerns about ineffective library use by child patrons. Influenced by Borgman and Walter's Science Library Catalog project and using Solomon's work as a basis for their research into children's OPAC use and information retrieval behaviour, the developers based their understanding of children's abilities and cognitive levels on Kuhlthau's work. [36]

Focus groups during which children and parents described the problems they faced in using the Denver Public Library and observation of children's difficulties in using traditional catalogues reinforced Sandlian's belief that an improved catalogue would significantly improve the library's overall service to children. [37]

> *Our primary goal was to design an interface to an online catalogue that eliminated these barriers to information retrieval. We also wanted to remove the cognitive overhead that obstructs a child's natural curiosity. Secondly, the system had to be fun to use, interactive, easily modifiable, and respect the intelligence and creativity of children. Thirdly, this catalog had to have a positive impact on literacy, by motivating children to read with relevant subject choices and search successes [38]*

Children were asked to identify the meanings of the graphics used in the initial design of Kid's Catalog. Their answers were apparently not always what the developers expected. 'They didn't think a dolphin should be pink and they wanted sea animals to have water in the background... Abraham Lincoln's picture triggered the image of president, and not author or biography as we had thought. As an alternative, they suggested an image of a hand, writing on a piece of paper, to best represent the idea of "author" '. [39] It is probably not a coincidence that the image of a hand writing on paper is currently leading in the polls for 'author' in the IFLA icon project. [40]

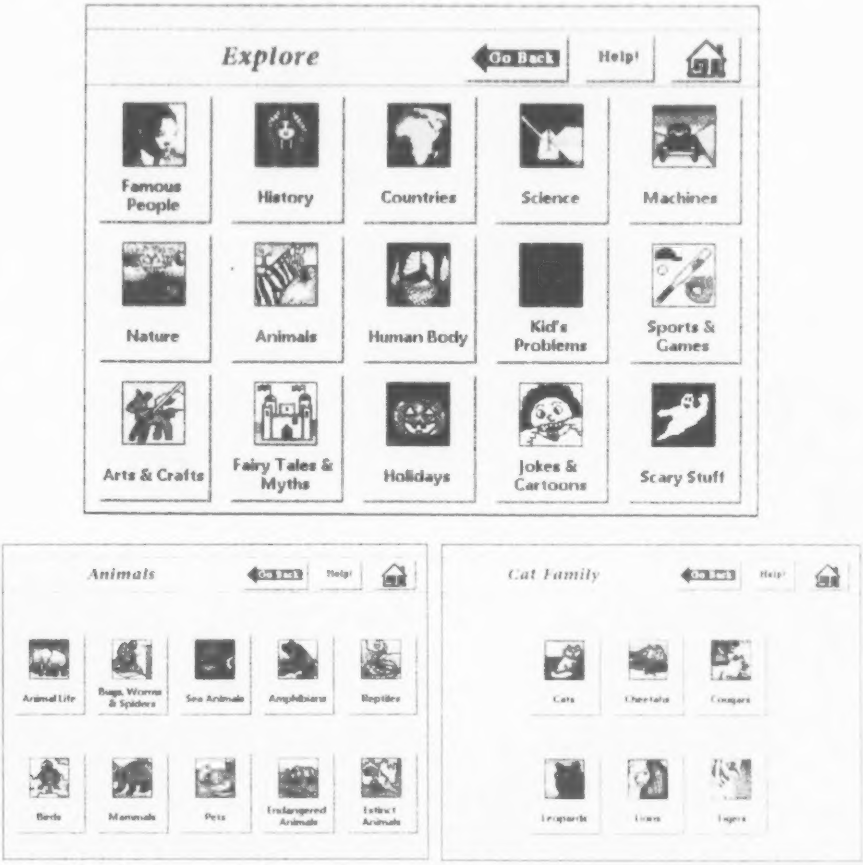
Kid's Catalog software uses HyperCard links to simplify the searching process for the young public library user, who is thereby excluded from access to adult titles. Cognitive links have already been made behind the scenes [41] and connections between disparate subject areas have been manipulated where necessary to permit, for example, searching for sufficient detail to write an assignment or report on a particular country. [42]

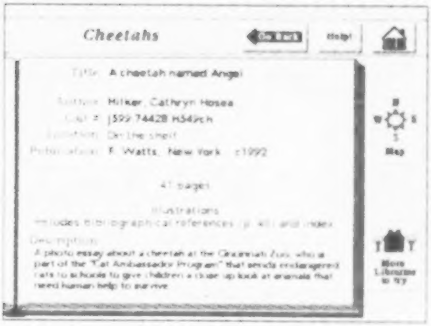
> *Each search launches a series of messages to the main database, including commands to search certain MARC tags and fields, bring back the information, and display it on the screen in a particular format in certain colours and fonts. Assembling the interface was like a giant Tinker Toy project: choosing images and creating relationships between them, building pathways, linking everything and then testing and retesting. [43]*

Kid's Catalog's main menu presents four main options: Explore, Find It!, Best Stories and Library Map.

The first Explore screen uses icons, accompanied by text, to present 15 major groupings of topics, including Famous People, History, Animals, Nature, Machines, Kid's Problems, Arts & Crafts, Jokes & Cartoons and Scary Stuff. [44] The influence of Kuhlthau's work is obvious in the selection of these major groupings. Children don't have to be able to read well to use Explore. Icons are used to narrow the search until the searcher reaches bibliographic records, at which point it is possible to bring up the map of the library to indicate where the item is located. The map does not provide fine detail but would assist the searcher. Figure 1 shows an Explore search for information about cheetahs.

Figure 1: Sample 'Explore' search for information about 'cheetahs'


Explore
Go Back
Help!
Famous People
History
Countries
Science
Machines
Nature
Animals
Human Body
Kid's Problems
Sports & Games
Arts & Crafts
Fairy Tales & Myths
Holidays
Jokes & Cartoons
Scary Stuff
Animals
Go Back
Help!
Animal Life
Bugs, Worms & Spiders
Sea Animals
Amphibians
Reptiles
Birds
Mammals
Pets
Endangered Animals
Extinct Animals
Cat Family
Go Back
Help!
Cats
Cheetahs
Cougars
Leopards
Lions
Tigers

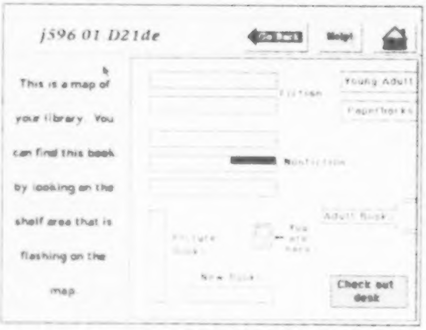


Title: A cheetah named Angel
Author: Milker, Cathryn Hosea
Call #: j599.74428 H549ch
Location: On the shelf
Publication: F. Watts, New York, c1992

47 pages

illustrations
Includes bibliographical references (p. 47) and index

Description:
A photo essay about a cheetah at the Cincinnati Zoo who is part of the "Cat Ambassador Program" that sends endangered cats to schools to give children a close up look at animals that need human help to survive.



This is a map of your library. You can find this book by looking on the shelf area that is flashing on the map.

The Find It! option allows searching on author, subject and series access points. Selection of subject searching, for example, leads the user to letters of the alphabet. Choice of a particular letter will position the searcher in that alphabetical subsection of the subject authority file. It is then possible to scroll through subject headings until a useful heading is recognized. Such searching obviates the need for the searcher to be able to spell.

The Best Stories option is an online bibliography of award-winning, favourite and recommended books, [45] which would best be used after local customisation.

User help is available at both main menu and individual menu levels. Kid's Catalog uses a robot, Cedric, to personify help but responses and instructions generated from help are displayed as text and would obviously be incomprehensible without an ability to read.

To be fully utilised, Kid's Catalog software needs to be tailored for local use. Customisation for use in Australia should include the selection and addition of new culturally-specific icons and the text to accompany them, specification of the kinds of searches linked to specific icons, the creation of local library maps and Best Stories lists. [46]

As a product marketed by Dynix, Kid's Catalog has at times been discussed on Dynix-L. [47] After a question about its value, one respondent reported that "the children love it and the parents ... adore it. I don't think our library has done anything in the last 12 years that has garnered so much good publicity, positive remarks, etc." [48] Other replies from library staff were not always quite so positive. Frustration seemed to be centred on users' inability to place holds, staff wishes to keep statistics, [49] response time issues, [50] problems caused by less than perfect initial databases [51] and the amount of work necessary to set up the library map [52] and maintain up-to-date links for Explore and other search facilities. [53] Kuntz described the use of Kid's Catalog in the Ramapo Catskill Library System. 'Our libraries look upon it as a way to introduce kids to the concepts of catalog searching and classification of materials. Remember, a whole generation now ... will not have instruction or hands on experience with a card catalog. Kid's Cat makes learning how to use the library fun'. [54]

DRA KIDS

Data Research Associates offers DRA Kids. From the marketing information available on DRA Web. DRA Kids seems to bear rather strong similarities to Kid's Catalog. Its WWW page is subtitled *Not just GUI kid stuff* and talks about toys which will not be used unless they are fun. Fun seems to mean the use of colourful graphics. [55]

According to its designers, DRA Kids is both easy-to-install and easy-to-use. The young library users which it targets require only a basic point-and-click knowledge of computers and the equivalent of the American third-grade reading comprehension level. [56]

DRA Kids differs from Kid's Catalog in that it is designed to provide access to the standard library catalogue rather than one specifically tailored for children. [57] It offers three search mechanisms:

- **Type It** - Users with specific information needs can simply type in a search and then click on the icon for author, title, subject or keywords.
- **Find It** - This strategy presents a set of icons for the alphabet. Each letter is represented by a corresponding picture, from Apple to Zebra. After selecting a letter/icon, the user is presented with a list of appropriate topics from which to choose.
- **Choose It** - The Look Index presents the searcher with a predetermined list of interesting topics, such as 'the rainforest' or 'stories'. Selection of a particular topic brings up a more detailed list from which to choose. [58]

Screens, topics and icons are easy to change to meet specific library requirements. [59]

BUCHERSHATZ

Ursula Schultz of the Hamburg School of Librarianship has designed Buchershatz to promote reading among children aged eight to ten. [60] Buchershatz is a stand-alone system, which uses the metaphor of searching for treasure on a desert island. Schultz divides motivation for reading into three basic groups: entertainment, finding out and feelings, and represents these in the main menu categories by a pirate, an octopus and a seagull respectively. [61]

Buchershatz's prototype database incorporates the scanned images of book covers and includes abstracts describing the content of each item, but it is separate from the main library catalogue and thus does not tell children whether books are available or already on loan. [62] Further developments to enhance its user-friendliness are planned, including the further utilisation of 'Susi' a helpful presence on the menu bar. [63]

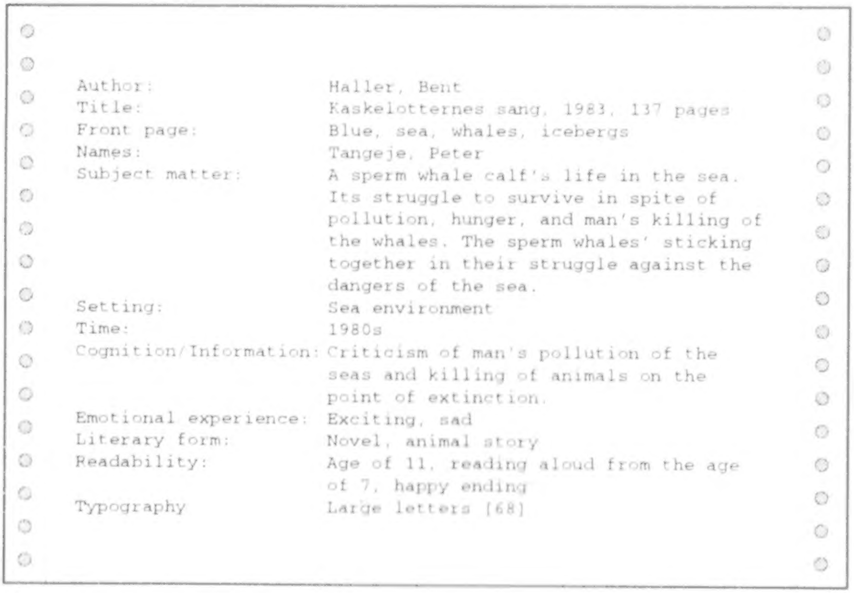
THE BOOK HOUSE

Of the interfaces discussed here, the most sophisticated metaphor is that used by The Book House, an OPAC designed to support the retrieval of fiction by public library users. It was not specifically designed for children, but for 'novices from 7 to 70 years of age'. [64] The perception that fiction, although a major component of public library stock, was not being being fully utilised was also a strong motive for its development. [65]

Design of The Book House followed a lengthy period of research into users' fiction retrieval behaviour. The investigations identified the queries which were likely to be made by searchers and led to the development of the AMP (Analysis and Mediation of Publications) classification, a multidimensional system for fiction. A matching database was also designed to utilise the classification and to support flexible search strategies. [66]

The AMP classification system was used to create Book House records for half of the novels for children and adults in a small public library in Copenhagen. [67] Figure 2 provides an idea of the scope of the AMP system by showing the types of data included for a children's novel about whales.

Figure 2: Sample AMP record for a children's novel about whales



```
Author:                   Haller, Bent
Title:                    Kaskelotternes sang, 1983, 137 pages
Front page:               Blue, sea, whales, icebergs
Names:                    Tangeje, Peter
Subject matter:           A sperm whale calf's life in the sea.
                          Its struggle to survive in spite of
                          pollution, hunger, and man's killing of
                          the whales. The sperm whales' sticking
                          together in their struggle against the
                          dangers of the sea.
Setting:                  Sea environment
Time:                     1980s
Cognition/Information:    Criticism of man's pollution of the
                          seas and killing of animals on the
                          point of extinction.
Emotional experience:     Exciting, sad
Literary form:            Novel, animal story
Readability:              Age of 11, reading aloud from the age
                          of 7, happy ending
Typography                Large letters [68]
```

Analysis of user characteristics was also crucial to the development of the Book House metaphor and to the choice of icons as an interface language. [69] The interface makes 'heavy use of familiar metaphors from everyday life enabling users to make easy analogies between well known, common phenomena and the objects in the computer interface'. [70] For example, one goes up the steps to enter the main menu and moves into a specific room to choose a search strategy. Strategies designed for children show children in the rooms. [71]

A room with a worktable is the metaphor for subject searching:

> *The poster on the wall gives access to subject matter keywords: plot, action and course of events, psychological descriptions and social relationships such as books about family life, quarrels, ... etc. The globes on the table and the clock on the wall give access to time ... and ... geographical places such as books about Sydney in the sixties ... The view out the window gives access to keywords about the environment, social and professional settings ... The masks on the wall give access to ... the emotional experience ... such as humorous books. The icon showing the author sitting with his typewriter gives access to ... the author's intention to put forward ideas and opinions on conditions in society or on the nature of human beings ... The glasses on the table give access to ... the accessibility of books, their readability, language level, size of typography, etc.... Card catalogues on the table give access to author and title names ... busts on the shelf give access to ... the names and ages of the main characters. The book on the table gives access to ... the colors and pictures on the covers of books in the database. [72]*

Browsing through a range of icons which indicate subject content is another heavily-used option. Each icon is accompanied by a line of descriptive text. The icons were constructed as pictorial analogies for index terms and recognition of their meanings was tested with groups of children, adults and librarians. Children and adults often associated different meanings with the same icon, with the result that the text accompanying the icons in the children's database differs from that in the adult database. [73] Children unable to read were targeted as users of The Book House as the designers believed that computer based information retrieval skills need to be acquired at an early age. As they were probably able to play computer games, it was thought that as they learned to read they would 'shift from playing with the system to serious use for retrieval'. [74]

Help text across the bottom of the screen encourages the user to explore and explains the meaning of the icons, while pictures of the rooms entered are displayed across the top of the screen to assist with navigation. A life raft in an upper corner of the screen also offers help when necessary. Other helpful devices include an eraser to delete terms found to be unproductive in Boolean searching.

The combination of a helpful interface and catalogue records designed to incorporate more data relevant to users' retrieval behaviour has been a very powerful one. Evaluation of The Book House project over six months reported a highly positive reaction to the new classification system and its associated vocabulary, the flexible search strategies and the icon-based user interface. It was characterised as both easy and great fun to use by both children and adults. [75]

WHAT OF THE FUTURE?

So what have we gained from our examination of these systems using icons? Perhaps the first thing to be gained is an appreciation of the difficulties faced by the designers of such interfaces and a level of admiration for their achievements so far. Despite the occasional dismissive comment from people who find them distracting [76], there is a place for icons in OPAC interface design. There is no reason why icons should not be utilised to help catalogue users to enjoy their searches for information. A standardised icon set for major functions and specific fields of bibliographic databases would be a very useful alternative to purely text-based interfaces, and, as far as operational commands are concerned, it would surely not be difficult to incorporate into each library software package a switch between icon-based and purely text-based menus. Proficient users would probably move directly into text-based searching, rather than wasting time on attractive or entertaining interfaces when they have the skills to employ more direct strategies. Icon-based assistance could still be available for novice users of any age.

At what stage would the choice between such alternatives become unnecessary? A combination of maturity and experience would ultimately render some of the flashier aspects of GUIs unnecessary. The transition between needing assistance with the interface and being irritated by too much assistance is probably a fertile area for research. If Kid's Catalog makes useful connections between related topics, will children or teenagers still bother to use its icons as they reach Piaget's formal operational stage of development and are able to construct their own hypotheses and questions? [77]

Use of icons to indicate subject content is likely to remain more problematic. The meaning of icons changes over time and between different age groups and cultures. Extensive, and expensive, research would be required to construct useful iconographies on any large scale. Icons could be used effectively, as they are in The Book House, as indicators of broad subject groupings for fiction in public and school libraries. However, it will be some time before the use of icons could significantly challenge the *Library of Congress Subject Headings'* and the *SCIS Subject Headings List's* precision and ability to handle subtle nuances of language and variations between topics. To return to the earlier examples, *Societies living in common without vows (Canon law)* is extremely precise as a written heading. It is surely impossible to design an icon, or a combination of icons, to convey the same meaning. *Automobile driving on mountain roads*, on the other hand, would be easily translated as an icon.

Although it is not difficult to make a case for continuing research into icons and GUIs, there has not been a flood of products into the marketplace and ongoing development of existing products cannot be seen to be guaranteed. Equally valid arguments could be made, for example, for improving access to information by enhancing the bibliographic record so that it more closely matches user requirements. The problem in both cases is likely to be one of cost. Financial constraints will force many libraries to continue functioning with traditional resources [78], while OPAC developers cannot ply their trade for joy alone. Reasonably priced OPACs with well designed GUIs may still be difficult to sell to libraries caught in an age of economic rationalism. Software developers in future may simply not find it worth their while to invest extensively in GUI creation for catalogues. Increasing use of the Internet may also mitigate against commercial development of GUIs for OPACs, since there seems to be a growing, if misguided, feeling among those with Internet access that the best way to search for information is to bypass libraries, librarians and traditional sources entirely and to use a WWW search engine.

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[25] See <http://lorne.stir.ac.uk/iconstd/actions/>

[26] *Ibid.*

[27] Karen Anderson, Personal communication, 1996

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[31] Walter & Borgman, *op. cit.*, pp. 160-163.

[32] Borgman et al, *op. cit.*, p. 668.

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[34] *Ibid.*, p. 682.

[35] *Ibid.*

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[46] *Ibid.*, p. 5.

[47] Dynix-L is an unmoderated list. To subscribe, send a message to <majordomo@sbu.edu> with the body of the message being subscribe dynix_L [your email address]

[48] An anonymous response to an inquiry in Lois Rehor's email to Dynix-L, 1 December 1995.

[49] George Kerr, email to Dynix-L, 15 January 1996

[50] Doug Everhart, email to Dynix-L, 1 December 1995

[51] Joseph Umhauer, email to Dynix-L, 3 December 1995

[52] Everhart, *op.cit.*

[53] Kerr, *op.cit.*

[54] Jerry Kuntz, email to Dynix-L, 4 December 1995

[55] Information about DRA Kids is included in the DRA Web Page at <http://www.dra.com>

[56] *Ibid.*

[57] *Ibid.*

[58] *Ibid.*

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[62] *Ibid.*, p. 59.

[63] *Ibid.*, p. 58.

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[70] *Ibid.*, p. 101.

[71] *Ibid.*, p. 103.

[72] *Ibid.*, pp. 103-104.

[73] Pejtersen, 1992, *op. cit.*, p. 364.

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[75] Pejtersen, 1992, *op. cit.*, p. 365.

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The Role of SCIS Cataloguing Agencies: The NCEC

Penelope Maddick

INTRODUCTION

The Schools' Catalogue and Information Services (SCIS) database, is owned and managed by Curriculum Corporation (CC). It is a database consisting primarily of catalogue records. A small percentage of resource reviews is also included. SCIS is a national database. It was born from an innovative and creative vision, a vision that came to fruition when people believed in it. The creative and innovative vision that spawned SCIS continues to guide it as it moves towards the twenty-first century.

HISTORICAL BACKGROUND

The development of SCIS has been a major cooperative venture between the state and territory government and independent education systems. This cooperation began over twenty years ago and continues to this day. The 1970s saw four pilot projects, funded by the Commonwealth Schools Commission, being conducted to determine the feasibility of establishing a national cataloguing service.

It was only in 1982, though, that a planning group was organized to prepare a proposal for the establishment of such a national cataloguing information service. In 1983, as a result of this proposal, tenders were called for the provision of computer, microfiche and catalogue card services.

Australian Consolidated Industries was contracted in 1984 to provide these services for the Australian Schools' Catalogue and Information Services (ASCIS) database. That year saw the creation of the original ASCIS database. Catalogue records provided by the Western Australian, South Australian and ACT Government education systems formed the basis of this new database. [1]

In 1990, the Curriculum Corporation subsumed ASCIS and the Curriculum Development Centre. The National Catholic Education Commission (NCEC) and the National Council of Independent Schools of Australia were no longer involved in ownership of the company but retained membership on the Board of Directors. The

NSW Education Department declined both ownership and Board membership privileges.

New Zealand became an official member of the Corporation in 1991. This resulted in the name change to SCIS that took effect at the beginning of 1992. The four years since 1992 have seen the database move in new directions and embrace new technologies. CC is focused on maintaining the relevance of the database by moving it into the twenty-first century.

RATIONALE FOR THE EXISTENCE OF SCIS

Whether in the twentieth or the twenty-first centuries the rationale behind the existence of the SCIS database remains the same. The various state and territory education authorities have recognised that:

- SCIS adheres to a specific standard of catalogue record creation. This standard is nationally endorsed and accepted. Use of SCIS output products by schools ensures that this standard is maintained;
- The use of SCIS reduces time spent by teacher librarians in original cataloguing of resources and enables greater involvement in other curriculum and educative duties. This is a more cost effective use of a teacher librarian's time;
- Duplication of time and effort across many schools is eliminated by the use of SCIS and its output products;
- More effective organisation and utilisation of resources in school resource centres is facilitated by the use of accurately catalogued, nationally consistent, quality controlled records.

SCIS SUBSCRIPTIONS - SOME STATISTICS

Over 4000 schools throughout Australia are SCIS subscribers. Their use of the SCIS database and its output products reinforces the position of SCIS as a nationally relevant, innovative enterprise.

SCIS enables these subscribers (see Table 1) to access the database of approximately 600,000 catalogue records via microfiche, CD-ROM or on-line means. Subscribers search the database, identify and then order the catalogue records required by their individual school libraries. The catalogue records may be purchased as sets of catalogue cards or as machine-readable records (MRR). Records for fiction and non-fiction books, audio-visual, computer software and other resources across all curriculum and key learning areas are included on the database.

Table 1: SCIS subscription figures as at 23 August 1996

Sub. Type	NSW	VIC	QLD	SA	ACT	WA	TAS	Total
Online	1737	129	70	77	10	5	6	2034
CD-ROM	96	149	165	59	0	19	2	490
Full microfiche	442	611	310	146	25	20	9	1563
Abbrev. microfiche	41	44	31	36	6	3	0	161
Totals	2316	933	576	318	41	47	17	4248

When the 1996 figures above are compared to the 1995 subscription figures in Table 2, it is evident that there is considerable movement towards the more 'technological' forms of subscription.

Table 2: A comparison of 1995 and 1996 SCIS subscription figures

Sub. Type	1995	1996	% shift
Online	1404	2034	+ 15.3
SCIS on disk	301	490	+ 4.5
Full microfiche	2326	1563	- 17.2
Abbrev. microfiche	271	161	-2.5
Totals	4302	4248	

In summary:

- Online subscriptions have increased from 32.6 per cent of total subscriptions in 1995 to 47.9 per cent in 1996. This is an overall increase of 15.3 per cent;
- SCIS on disk subscriptions have increased from 7 per cent of total subscriptions in 1995 to 11.5 per cent in 1996, an increase of 4.5 per cent;
- Full microfiche subscriptions have decreased from 54 per cent of total subscriptions in 1995 to 36.8 per cent in 1996. This represents a decrease of 17.2 per cent;
- Abbreviated microfiche subscriptions have decreased from 6.3 per cent of total subscriptions in 1995 to 3.8 per cent in 1996, a decrease of 2.5 per cent.

As CC is intending to cease production of the full and abbreviated microfiche and catalogue card output products in the year 2000, it is extremely important that this trend continues. Those schools that are still purchasing microfiche subscriptions and catalogue cards need to be planning for the future. If they ignore the reality and fail to establish appropriate technological responses they will no longer be able to access the SCIS database.

SCIS AGENCIES AND THE SCHOOLS - RELATIONSHIPS

Most State and Territory government and independent education systems have established 'Agencies' that input catalogue records onto the SCIS database. Agencies currently in operation are:

- South Australia - 5 cataloguing staff members, 2 additional staff
- New South Wales - 5 cataloguing staff members, 2 additional staff
- Western Australia - 5 cataloguing staff members
- Queensland - 4 cataloguing staff members, 2 additional staff
- Victoria - 2 cataloguing staff members
- Northern Territory - 2 cataloguing staff members
- NCEC - 1 Melbourne-based cataloguing staff member
- Tasmania - 1 non-cataloguing staff member

The cataloguing staff of each Agency add catalogue records to the database on a regular, usually daily, basis. While each of the State Agencies services schools only in its particular state, the NCEC Agency services Catholic schools throughout Australia. Each of the Agencies is working for a common cause - the maintenance and development of the SCIS database and through it, the maintenance and development of consistent, national standards.

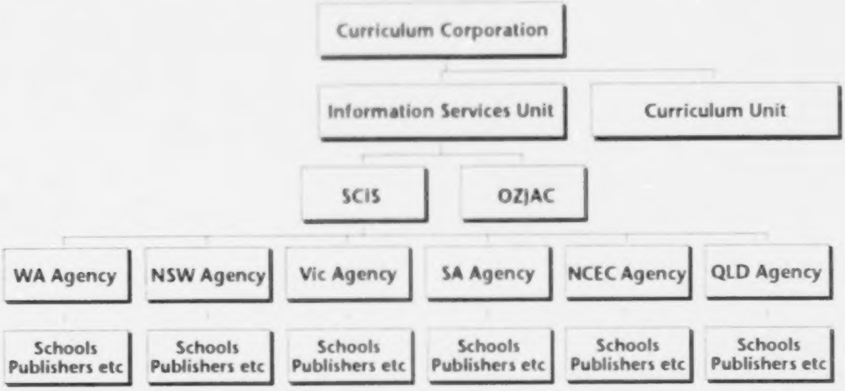
Agencies do not work in isolation. Contact with other Agencies and with CC occurs on a regular basis. Agencies and CC work together to determine responses to standards and quality control issues. Thus the response of SCIS to the arrival of the Dewey Decimal Classification 21st edition is determined by round-table discussions between Agency and CC staff. The decisions that are reached through these discussions are then implemented by CC and all Agencies.

Schools play a major role in the continued growth and development of the SCIS database. Additions or amendments to the *SCIS Subject Headings List* 3rd edition can be suggested by schools, through their state Agency, or by Agencies themselves. Proposals are discussed by Agency and CC staff and a decision made about the appropriateness of the suggested change. Decisions are binding on all Agencies and become part of the national SCIS standards.

Schools also feature highly as a source of resources for cataloguing. Agencies receive materials for cataloguing from publishing and distribution companies, primary and secondary schools, Catholic Education Offices and state education authorities, bookshops and some special libraries. There is no restriction on the type of media sought for cataloguing. Resources may be commercially available books, videorecordings, sound cassettes, compact discs, computer software, games, jigsaws, posters, maps, realia, serials, and so on. Materials published in languages as diverse as Indonesian, Hebrew, Pitjanjara and Russian are catalogued onto the database. In order for the database to remain current and relevant to today's curriculum directions, schools must continue to participate by sending resources to their state Agency.

In addition to their cataloguing work, staff at some of the Agencies offer a variety of professional development programs for library qualified and non-library qualified personnel working in their schools. Programs dealing with automation options, technology and information skills, and SCIS database search strategies are some of those available. Telephone support for cataloguing queries is also available from all Agencies.

Figure 1: Inter-relationship between CC, SCIS and schools


Curriculum Corporation
Information Services Unit
Curriculum Unit
SCIS
OZJAC
WA Agency
NSW Agency
Vic Agency
SA Agency
NCEC Agency
QLD Agency
Schools Publishers etc
Schools Publishers etc
Schools Publishers etc
Schools Publishers etc
Schools Publishers etc
Schools Publishers etc

THE FUTURE

Curriculum Corporation is determined that the SCIS database remains current and relevant to its users - in both content and technology. To this end CC was proactive in seeking a new software platform to replace the Dobis/Libis platform that previously supported the database. The Dobis/Libis platform had performed extremely well but was becoming increasingly expensive to maintain. It also limited the future technological development of the database.

The search undertaken by CC resulted in the selection of Voyager for the database platform. The development and implementation of the Voyager schools' ASCII OPAC has been the first phase in an ongoing project. Curriculum Corporation is currently working on the development of an MS-Windows OPAC for schools, a CD-ROM that allows records to be directly downloaded into the user's automated system, and down-line loading of records. Internet access to the SCIS database and the full-text capabilities of Voyager are two other areas under investigation pending possible development.

CONCLUSION

This age of rapid technological development poses challenges for all who are involved with the SCIS database. Curriculum Corporation is meeting those challenges head-on, as are staff at each of the cataloguing Agencies. It is vitally important that schools also rise to the challenges by planning for the future, a future without microfiche and catalogue cards. A future bright with potential. A possible future. An attainable future.

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MARC for Teacher Librarians: An Introduction

Ellen Paxton

INTRODUCTION

More and more school libraries in Australia today are coming into contact with MARC records or products generated from MARC records. Many teacher librarians, however, may not even be aware that MARC is playing a part in their library catalogue let alone know what the term means. This chapter attempts to demystify MARC by providing simple and clear explanations of what a MARC record is and how it is used, it's origins and history and how it has developed. The basic structure of a MARC record is also examined and illustrated by taking a sample SCIS catalogue card and coding it step by step into a MARC record. The paper concludes with a look at the use of MARC within SCIS, with particular emphasis on the experiences SCIS has had converting its bibliographic records from one version of MARC, AUSMARC, to another, USMARC.

MARC - WHAT AND WHY?

MARC stands for Machine-Readable Cataloguing. In plain English, this means a catalogue record written in a special format which allows it to be read, retrieved and manipulated by a computer. The format, known as the MARC format, is standardised. It is comprised of sets of codes whose meanings, rules and other specifications for use are explained in format manuals. With these manuals the cataloguer can take the information found on a standard catalogue card and code it into a MARC record which can be read by any computer programmed to accept and utilize the MARC format.

The existence of MARC means that thousands of catalogue records can be quickly and efficiently transported from one library computer, via tape, disk, even online, to another anywhere in Australia or the world. MARC makes it possible for libraries to share cataloguing information and reduces the need to catalogue materials from scratch. MARC records can be altered and manipulated by a computer to include local information to suit a particular library's needs and to produce a range of catalogue products such as cards and microfiche.

MARC RECORDS - ORIGIN AND BRIEF HISTORY

MARC originated in the mid 1960s with the Library of Congress (LC). The Library was looking for a more efficient method of sending its cataloguing information to libraries around the United States and began experimenting with machine readable records. The idea was to produce standardised cataloguing data on magnetic tapes which could be read by computers. These tapes could then be sold and distributed to libraries, loaded into their computers and reformatted for particular purposes such as the production of catalogue cards. [1]

After piloting the original MARC I format amongst 16 participating libraries, LC pressed ahead with the program. The MARC format was revised (MARC II) , a MARC Editorial Office was created and libraries within the U.S. began subscribing to weekly tapes of MARC records. As they were produced by the Library of Congress, these MARC records became known as LC MARC. In the mid 1970s cataloguing standards, such as the 2nd edition of *Anglo American Cataloguing Rules*, and the general International Standard Bibliographical Description , ISBD (g) were established and gradually incorporated into the LC MARC record format. [2] Today LC MARC has grown and developed to incorporate formats for a variety of library materials such as monographs, serials, music, projected media and has become known as USMARC (MARC records of the United States).

MARC AROUND THE WORLD

At the same time LC was piloting this project, the British National Bibliography (now part of the British Library) was also experimenting with machine readable bibliographic records and collaborated with LC in developing the original MARC format. [3] It's version of MARC is known as UK MARC. Other national libraries, such as those of France, Canada, Malaysia and Australia have also adopted the MARC record structures to create and distribute their national bibliographies.

AUSMARC. The Australian national version of MARC is known as AUSMARC. It was developed by the National Library of Australia to produce the Australian national bibliography. Libraries around Australia purchased catalogue records in AUSMARC from the Australian Bibliographic Network (ABN) database.

Not every national library uses its bibliography for the same function nor do they all follow and apply exactly the same set of cataloguing codes and practices in one standard way. Consequently the MARC formats used in individual countries are not identical, they contain variations of the original MARC format.

UNIMARC. Along with these national versions of MARC there is an international standard. UNIMARC stands for Universal MARC format. Owing to the different versions of MARC formats that have evolved within countries, it can be difficult and expensive to exchange bibliographic data from one nation to another. Time and money has to be spent converting the MARC format of one national library into the format used by another. UNIMARC aims to address this problem. The idea is that if national libraries agree to exchange their cataloguing data internationally in UNIMARC, they will only have to deal with the conversion of this single MARC format instead of a multiplicity of national MARC standards. [4] Australia, Canada, Japan, Hungary, South Africa, the United Kingdom and the USA national libraries have agreed to adopt UNIMARC for international data exchange. [5]

SOURCES OF MARC FOR AUSTRALIAN SCHOOL LIBRARIES

One of the original advantages of MARC was that it allowed cataloguing data to be loaded into computers which could be programmed to produce catalogue cards. In Australia MARC is used to produce catalogues in a variety of physical forms. The Schools Catalogue Information Services (SCIS) uses the MARC format to reproduce its catalogue records on cards, bibliographies, microfiche and CD-ROMs specifically for sale to school libraries around Australia. For non-automated schools, these MARC based products provide an essential means for updating and maintaining their card catalogues. Schools can use microfiche or access via modem the SCIS bibliographic database, to search over 500,000 catalogue records. They can order cards, by citing the unique SCIS number (computer generated) attached to each record, to update their collection. The advent of computers in school libraries has led to a more direct use of MARC. Most library automation systems used within schools today have the ability to import MARC records and many cataloguing modules have MARC at their centre. Automated school libraries are thus able to order their catalogue records in MARC format on a disk (ASCIS 80) which they load into their computers to update their catalogues. Similarly, school libraries wishing to convert their library collections over to an automated system are able to do so via MARC records. Programs such as ASCISRECON, enable a school library to bulk order MARC records from the SCIS bibliographic data base. The program lets a school customise the MARC records they purchase from SCIS on disk, to suit their local library needs, i.e. adding local call numbers and subject headings. In the near future, SCIS is aiming to capitalise on the flexibility of MARC by introducing the facility for school libraries to dial up the SCIS database and download MARC records directly into their library's automated system.

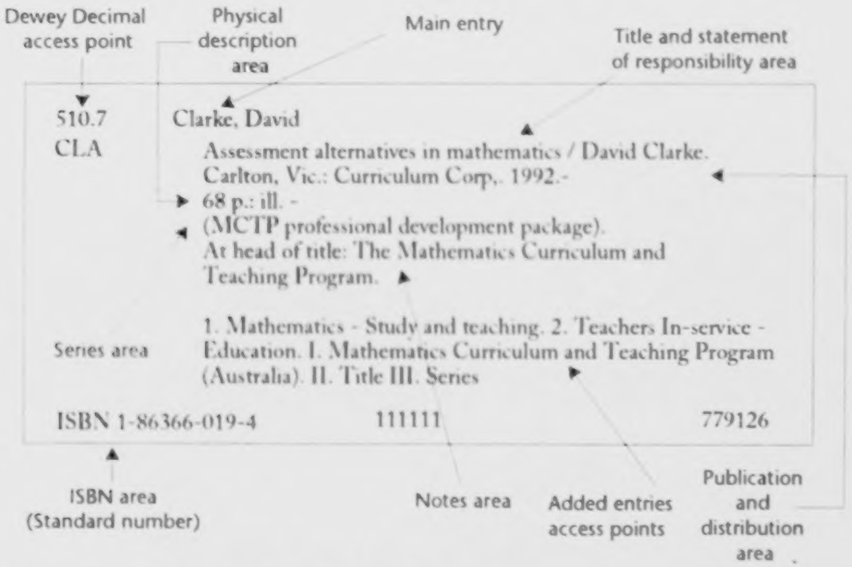
HOW MARC WORKS: MARC RECORD STRUCTURE

Using and understanding a MARC record doesn't require throwing away AACR2 and learning new cataloguing rules. The same standards and practices used for describing a bibliographic item on a traditional catalogue card are applied to a MARC record. A MARC record just frames the bibliographic information in a format which allows it to be housed and read by a computer. The major part of a MARC bibliographic record consists of data fields, tags, indicators, subfields and subfield codes. Understanding these terms provides the means to not only read and interpret but to catalogue a MARC record as well. *Note:* All the following examples of MARC are in USMARC format.

Data fields and tags

In the traditional card format, one or more elements of similar information are grouped together into the descriptive areas and access points (see Figure 1).

Figure 1: Descriptive areas and access points: traditional card format


Dewey Decimal access point
Physical description area
Main entry
Title and statement of responsibility area
Series area
ISBN area (Standard number)
Notes area
Added entries access points
Publication and distribution area

510.7
CLA

Clarke, David

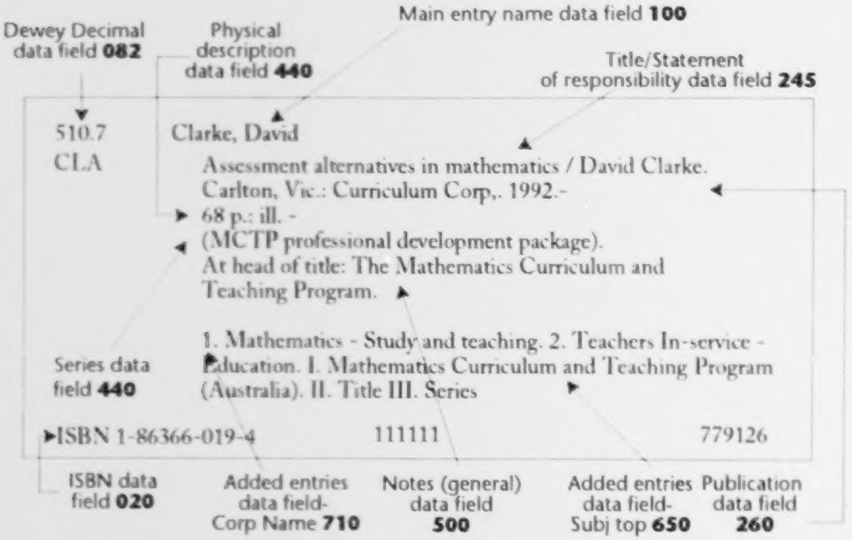
Assessment alternatives in mathematics / David Clarke.
Carlton, Vic.: Curriculum Corp,. 1992.-
68 p.: ill. -
(MCTP professional development package).
At head of title: The Mathematics Curriculum and Teaching Program.

1. Mathematics - Study and teaching. 2. Teachers In-service - Education. I. Mathematics Curriculum and Teaching Program (Australia). II. Title III. Series

ISBN 1-86366-019-4 111111 779126

MARC records organise bibliographic data in the same way. Each descriptive area and access point in the catalogue record is treated by the computer as a unit of information and is called a **data field** (see Figure 2). Each data field has its own 3 character label, normally numeric, called a **tag**. The tag enables the computer to recognise and locate the data field e.g. the computer knows that title information is always found with tag 245 (the terms tags and data fields will be used interchangeably).

Figure 2: Descriptive areas and access points: MARC record data fields



510.7
CLA

Clarke, David

Assessment alternatives in mathematics / David Clarke.
Carlton, Vic.: Curriculum Corp,. 1992.-
68 p.: ill. -
(MCTP professional development package).
At head of title: The Mathematics Curriculum and Teaching Program.

1. Mathematics - Study and teaching. 2. Teachers In-service - Education. I. Mathematics Curriculum and Teaching Program (Australia). II. Title III. Series

ISBN 1-86366-019-4 111111 779126

Dewey Decimal data field **082**
Physical description data field **440**
Main entry name data field **100**
Title/Statement of responsibility data field **245**
Series data field **440**
ISBN data field **020**
Added entries data field- Corp Name **710**
Notes (general) data field **500**
Added entries data field- Subj top **650**
Publication data field **260**

Data field tags range from 010, the field for the Library of Congress Cataloguing number to 9XX which contains local subject information. A complete list and description of these and other tags is found in any version of a MARC bibliographic format manual, i.e. the tags used in these examples are USMARC and can be found in the 3 volumes of the *USMARC Format for Bibliographic Data*. [6]

Repeatable/non-repeatable tags

A catalogue entry often repeats areas of information such as subjects and added authors. MARC also allows for the repetition of certain tags within a record. Repeatable tags are identified with the letter **R** just as tags which cannot be used twice in the same record, i.e. 245 (Title data field) and 100 (Main entry data field) are signified with the letters **NR**.

Indicators

Indicators are usually single digit numbers that immediately follow the tags, beginning with 010 on a MARC record. Each field has room for 2 indicators simply referred to as indicator 1 and indicator 2.

Example 1

245 **04** This reads: Tag 245 (Title data field)
▶ indicator 1 = 0 and
▶ indicator 2 = 4

Indicators enable the computer to interpret and supplement the bibliographic information contained within the data field. With tag 245 (Title data field), for example, the number assigned as indicator 1 instructs the computer as to whether or not the title will be required for an added entry, whilst the second indicator interprets the filing arrangement of the title.

Example 2

245 **04** $aThe Wave.

▶ the 1st indicator contains **(0)**	This means the title, *The Wave*, will not be treated as a title added entry.
▶ the 2nd indicator equals **(4)**	This means there are 4 nonfiling characters in the title (The = 3 characters + 1 space = 4 characters) and the title will be filed under **W**

Not all tags require their indicators to be filled. In the General note field (Tag 500) for example, the indicators are both undefined and left blank (represented as **ƀ**).

Example 3

500 **ƀƀ**

Some tags, such as Tag100 (Main entry personal name data field), only require their first indicator to be used with the second indicator left undefined or vice versa.

Example 4

100 **3ƀ**

The meanings of indicators vary from tag to tag. An explanation of the indicators and the function they perform within each data field, appears at the beginning of each tag description set out in a MARC bibliographic format manual.

Subfields

In the bibliographic description of a work, each area of description and access point can be subdivided into one or many elements. A title paragraph, for example, can be subdivided into title proper, GMD, parallel title, other title information and first and subsequent statements of responsibility. Each of these elements has its own set of standards for description. In MARC formats these subdivisions of information contained within a data field are called **subfields** (e.g. Title proper subfield, GMD subfield, etc.).

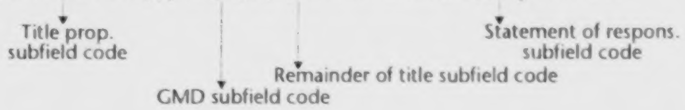
The number of subfields vary from tag to tag but all tags, beginning with 010, have at least one subfield.

Subfield codes

The subfield is always preceded by a subfield code. The code lets the computer identify the subfield and recognises that the information it contains requires separate treatment. The subfield code is composed of 2 characters: a delimiter (commonly represented by a dollar sign **$**) and a single character, normally a lowercase letter).

Example 5

245 04**$a**The happy cat**$h**[kit] :**$b**a feline adventure /**$c**by Tom Cat.



The meanings of each subfield code usually vary from tag to tag i.e. with Tag 245, the subfield code **$b**, identifies the remainder of title information whilst with Tag 700 (Added entry - personal name field) **$b** identifies numeric bibliographic data.

Certain subfields, like data fields, can be repeated in a MARC record. Repeatable and non repeatable subfields are identified in format manuals respectively with the letters **R** and **NR**. Every possible subfield that can be used with each tag is listed and explained in MARC format manuals.

OTHER MARC FORMAT TERMS

Along with the data fields, tags, subfields and subfield codes there are other components of a MARC record: the **Leader**, **Directory** and **Control fields**. These consist largely of codes, some added automatically by the computer and others by the cataloguer, that provide additional information about the record. This information is not found on your standard catalogue card but is needed by the computer to process the record efficiently. [7]

Leader

The first 24 characters make up the Leader. This contains codes which enable the computer to recognise and handle the record. Codes record information such as the length of the record, the bibliographic level of the record (e.g. monograph, serial) and cataloguing standard used to describe the record (i.e. AACR2, AACR1, etc.)

Directory

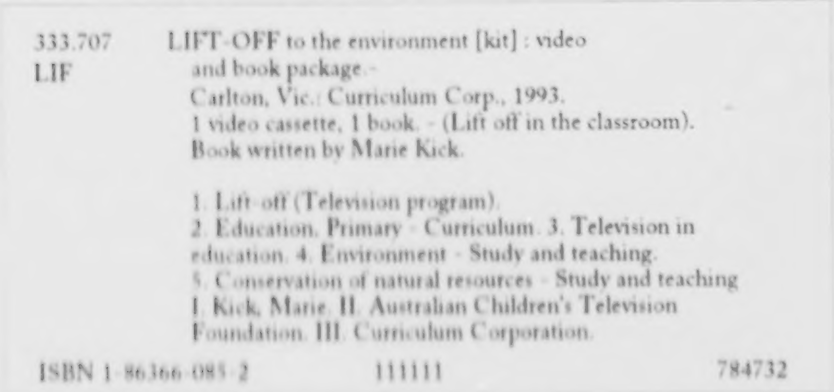
The directory must be present in every MARC record. The computer reads it like a contents page or map to quickly locate information contained within the MARC record. It is basically a string of compressed numbers containing the tags and the length and starting position of each field in the record. [8] The computer automatically generates this information.

Control fields

Control fields have tags beginning with 00 and are different to data field tags in that they don't have indicators or subfields. They provide the computer with the additional information it needs to read and retrieve information within the record. Control field 001 contains the record identifier - a unique number assigned by the computer to each record enabling it to be recognized and linked to related records. The 008 control field contains information codes which among other things identifies the intellectual level of the audience (e.g. secondary, tertiary).

READING AND CATALOGUING WITH MARC RECORDS

Figure 3: Shelf list card from SCIS (not actual size).



333.707 LIF

LIFT-OFF to the environment [kit] : video
and book package.-
Carlton, Vic.: Curriculum Corp., 1993.
1 video cassette, 1 book. - (Lift off in the classroom).
Book written by Marie Kick.

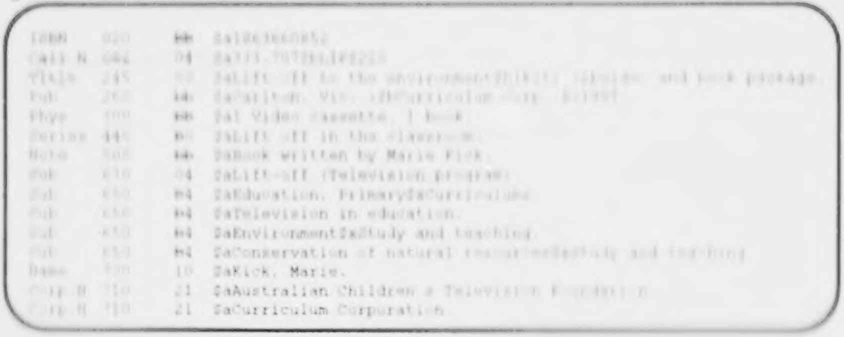
1. Lift-off (Television program).
2. Education, Primary - Curriculum. 3. Television in
education. 4. Environment - Study and teaching.
5. Conservation of natural resources - Study and teaching
I. Kick, Marie. II. Australian Children's Television
Foundation. III. Curriculum Corporation.

ISBN 1-86366-085-2 111111 784732

Figure 3 depicts a catalogue card produced by the SCIS database. Figure 4 shows the same record in MARC (USMARC) format on an OPAC (online public access catalogue) screen. On the following pages, a step-by-step demonstration is presented explaining how the data from the card (Figure 3) is coded into the USMARC format (Figure 4).

A description of each tag with its indicators and subfield codes used to construct the record appears on the left hand side. These are lifted from *USMARC Format for Bibliographic Data* [9] Note: Only those tags needed to construct this record are explained. Similarly, not every indicator or subfield code that can be used with each tag is represented.

Figure 4: MARC OPAC Screen



```
ISBN   020   bb  $a1863660852
Call N 082   04  $a333.7072$bLIF$221
Title  245   00  $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub    260   bb  $aCarlton, Vic. :$bCurriculum Corp.,$c1993
Phys   300   bb  $a1 video cassette, 1 book.
Series 440   b0  $aLift off in the classroom.
Note   500   bb  $aBook written by Marie Kick.
Sub    630   04  $aLift-off (Television program)
Sub    650   b4  $aEducation, Primary$xCurriculums.
Sub    650   b4  $aTelevision in education.
Sub    650   b4  $aEnvironment$xStudy and teaching.
Sub    650   b4  $aConservation of natural resources$xStudy and teaching.
Name   700   10  $aKick, Marie.
Corp.N 710   21  $aAustralian Children's Television Foundation.
Corp.N 710   21  $aCurriculum Corporation.
```

ABOUT THE MARC FORMAT EXAMPLES

Preceding each tag description is an extract from the sample SCIS card (Figure 3). The area of the card represented by the tag under discussion is shown in bold highlight. Examples showing how the information on the card is then coded into indicators and subfields, appear on the right hand side of the tag description. At the end of each tag explanation is a detail of the OPAC screen (Figure 4), depicting the highlighted data from the catalogue card as it would appear in a MARC record. Note: For clarity's sake indicators are shown separated with spaces from the tags and subfield codes.

a. International Standard Book Number (ISBN)

Card format (extract from Figure 3)

5. Conservation of natural resources - Study and teaching.
I. Kick, Marie. II. Australian Children's Television
Foundation. III. Curriculum Corporation.

ISBN 1-86366-085-2 111111 784732

(Tag) **020 ISBN (R)**

Indicators: Undefined; each contains a blank (b) ▸ Indicators = **b**

Subfield codes:

$a	**ISBN (NR)**	▸ **$a**1863660852
$c	Terms of availability (NR)	
$z	Cancelled/invalid ISBN (R)	

MARC OPAC (extract from figure 4)

```
ISBN   020   bb  $a1863660852
```

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b. Dewey Decimal Call Number

Card format (extract from Figure 3)

```
333.707     LIFT-OFF to the environment [kit] : video
LIF            and book package.-
```

(Tag) 082 Dewey Decimal Call Number (R)

First Indicator: Type of edition
- **0** **Full edition** → 1st Indicators = **0**
- 1 Abridged

Second Indicator: Source of call number
- 0 Assigned by LC
- **4** **Assigned by agency other than LC** → 2nd indicator = **4** *(SCIS agency)*

Subfield codes:
- **$a** **Classification number (R)** → **$a**337.707
- **$b** **Item number (NR)** → **$b**LIF
- **$2** **Edition number (NR)** → **$2**20 (ie Dewey 20)

MARC OPAC (extract from figure 4)

```
ISBN    020    bb   $a1863660852
Call N  082    04   $a333.707$bLIF$220
```

c. Title and statement of responsibility

Card format (extract from Figure 3)

333.707 **LIFT-OFF to the environment [kit] : video**
LIF **and book package.-**
Carlton, Vic.: Curriculum Corp., 1993.

(Tag) 245 Title Statement (NR)

First Indicator: Title added entry
0 **No title added entry** → 1st Indicator = **0** (as the title is main entry, no title added entry required.)
1 Title added entry

Second Indicator: Nonfiling characters → 2nd indicator = **0** (no nonfiling words)
0-9 **Number of nonfiling characters present**

Subfield codes:
$a **Title (proper) (NR)** → **$a**Lift-off to the enivironment :

$h **Medium (GMD) (NR)** → **$h** [kit] :
$c Remainder of title page/ statement of respons. (NR)

$b **Remainder of title (NR)** → **$b**video and book package

MARC OPAC (extract from figure 4)

```
ISBN    020    ƀƀ  $a1863660852
Call N  082    04  $a333.707$bLIF$220
Title   245    00  $aLift-off to the environment$h[kit] :$bvideo and book package.
```

d. Publication

Card format (extract from Figure 3)

333.707 LIFT-OFF to the environment [kit] : video
LIF and book package.-
Carlton, Vic.: Curriculum Corp., 1993.

(Tag) **260 Publication, Distribution, etc. (NR)**

Indicators:	Undefined →	1st & 2nd indicators = **b**
Subfield codes:		
$a	Place of publication (R) →	**$a**Carlton, Vic. :
$b	Name of publisher (R) →	**$b**Curriculum Corp.,
$c	Date of publication (R) →	**$c**1993.

MARC OPAC (extract from figure 4)

```
ISBN    020     bb  $a1863660852
Call N  082     04  $a333.707$bLIF$220
Title   245     00  $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub     260     bb  $aCarlton, Vic. :$bCurriculum Corp.,$c1993.
```

e. Physical description (collation)

Card format (extract from Figure 3)

333.707 LIFT-OFF to the environment [kit] : video
LIF and book package.-
Carlton, Vic.: Curriculum Corp., 1993.
1 video cassette, 1 book. - (Lift off in the classroom).

(Tag) **300 Physical Description (R)**

Indicators: Undefined ▸ Indicators = **ƀ**

Subfield codes:

$a	**Extent (number of pages, cassettes) (NR)**	▸ **$a**1 video cassette, 1 book
$b	Other physical details (NR) (illustrations, colour etc.)	
$c	Dimensions (R)	

MARC OPAC (extract from figure 4)

```
ISBN    020    ƀƀ  $a1863660852
Call N  082    04  $a333.707$bLIF$220
Title   245    00  $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub     260    ƀƀ  $aCarlton, Vic. :$bCurriculum Corp.,$c1993.
Phys    300    ƀƀ  $a1 Video cassette, 1 book.
```

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f. Series title

Card format (extract from Figure 3)

333.707 LIFT-OFF to the environment [kit] : video
LIF and book package.-
Carlton, Vic.: Curriculum Corp., 1993.
1 video cassette, 1 book. - **(Lift off in the classroom)**.

(Tag) **440 Series Title/Added entry-Title (R)**

First Indicator: Undefined

1st Indicators = **ƀ**

Second Indicator: Nonfiling characters

0-9	Number of nonfiling characters present.

2nd indicator = **0**
(No nonfiling words present)

Subfield codes:

$a	**Title (NR)**
$v	Volume number (NR)
$c	ISSN (NR)

$aLift off in the classroom
(No parentheses required in MARC record.)

MARC OPAC (extract from figure 4)

```
ISBN    020    ƀƀ  $a1863660852
Call N  082    04  $a333.707$bLIF$220
Title   245    00  $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub     260    ƀƀ  $aCarlton, Vic. :$bCurriculum Corp.,$c1993.
Phys    300    ƀƀ  $a1 Video cassette, 1 book.
Series  440    ƀ0  $aLift off in the classroom.
```

g. General note

Card format (extract from Figure 3)

333.707 LIFT-OFF to the environment [kit] : video
LIF and book package.-
Carlton, Vic.: Curriculum Corp., 1993.
1 video cassette, 1 book. - (Lift off in the classroom).
Book written by Marie Kick.

(Tag) **500 General Note (R)**

Indicators: Undefined ▸ indicators = **b**

Subfield codes:
$a General Note (NR) ▸ **$a**Book written by Marie Kick.

MARC OPAC (extract from figure 4)

```
ISBN    020    bb  $a1863660852
Call N  082    04  $a333.707$bLIF$220
Title   245    00  $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub     260    bb  $aCarlton, Vic. :$bCurriculum Corp.,$c1993.
Phys    300    bb  $a1 Video cassette, 1 book.
Series  440    b0  $aLift off in the classroom.
Note    500    bb  $aBook written by Marie Kick.
```

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h. Added entries

Card format (extract from Figure 3)

1. Lift-off (Television program).
2. Education, Primary - Curriculums. 3. Television in education. 4. Environment - Study and teaching.
5. Conservation of natural resources - Study and teaching

(Tag) 630 Subject Added entry-Uniform title (R)

First Indicator: Nonfiling characters
0-9 Number of nonfiling characters in title ▸ 1st Indicators = **0**

Second Indicator: Subject heading system
0 Library of Congress Subject Headings
4 **Source not specified** ▸ 2nd Indicator = **4** (at present, no source code has been specified for SCIS subject headings.)

Subfield codes:
$a **Uniform title (NR)** ▸ **$a**Lift-off (Television program)
$x General subdivision (R)
$y Chronological subdivision (R)
$z Geographic subdivision (R)

MARC OPAC (extract from figure 4)

```
ISBN    020    ƀƀ  $a1863660852
Call N  082    04  $a333.707$bLIF$220
Title   245    10  $aLift-off to the environment$h[kit] : $bvideo and book package.
Pub     260    ƀƀ  $aCarlton, Vic. : $bCurriculum Corp., $c1993.
Phys    300    ƀƀ  $a1 Video cassette, 1 book.
Series  440    ƀ0  $aLift off in the classroom.
Note    500    ƀƀ  $aBook written by Marie Kick.
Sub     630    04  $aLift-off (Television program)
```

i. Added entry - Subject topical

Card format (extract from Figure 3)

1. Lift-off (Television program).
2. Education, Primary - Curriculums. 3. Television in education. 4. Environment - Study and teaching.
5. Conservation of natural resources - Study and teaching
I. Kick, Marie. II. Australian Children's Television

(Tag) 650 Subject Added entry-Topical Term (R)

First Indicator: Level of subject

b	**No information available**	1st Indicator = **ƀ** (Note: This is an example where **ƀ** has a meaning)
0	No level specified	
1	Primary Subject	
2	Secondary subject	

Second Indicator: Subject heading system

0	Library of Congress Subject Headings or LC authority file	
7	**Source not specified**	2nd Indicator = 4

Subfield codes:

$a	**Topical term as entry element (NR)**	**$a**Education, Primary
$x	**General subdivion (R)**	**$x** Curriculums
$y	Chronological subdivision (R)	
$z	Geographic subdivision (R)	

Note: The above process is repeated for the other 3 topical added entries represented in our sample record. See below:

MARC OPAC (extract from figure 4)

```
ISBN    020    ƀƀ  $a1863660852
Call N  082    04  $a333.707$bLIF$220
Title   245    00  $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub     260    ƀƀ  $aCarlton, Vic. :$bCurriculum Corp.,$c1993.
Phys    300    ƀƀ  $a1 Video cassette, 1 book.
Series  440    ƀ0  $aLift off in the classroom.
Note    500    ƀƀ  $aBook written by Marie Kick.
Sub     630    04  $aLift-off (Television program).
Sub     650    ƀ4  $aEducation, Primary$xCurriculums.
Sub     650    ƀ4  $aTelevision in education.
Sub     650    ƀ4  $aEnvironment$xStudy and teaching.
Sub     650    ƀ4  $aConservation of natural resources$xStudy and teaching.
```

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j. Added entry -Personal name

Card format (extract from Figure 3)

2. Education, Primary - Curriculums. 3. Television in
education. 4. Environment - Study and teaching.
5. Conservation of natural resources - Study and teaching
I. Kick, Marie. II. Australian Children's Television

(Tag) 700 Added entry-Personal name (R)

First Indicator: Personal name
0 Forename
1 Single name → 1st Indicator = **1**
2 Multiple surname
3 Family name

Second Indicator: Type of added entry
0 Alternaive entry → 2nd Indicator = **0**
(Likely to be thought of as an author)
1 Secondary entry
2 Analytical entry

Subfield codes:
$a Personal name (NR) → **$a**Kick, Marie.
$b Numeration (NR)

MARC OPAC (extract from figure 4)

```
ISBN    020    bb   $a1863660852
Call N  082    04   $a333.707$bLIF$220
Title   245    00   $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub     260    bb   $aCarlton, Vic. :$bCurriculum Corp.,$c1993.
Phys    300    bb   $a1 Video cassette, 1 book.
Series  440    b0   $aLift off in the classroom.
Note    500    bb   $aBook written by Marie Kick.
Sub     630    04   $aLift-off (Television program)
Sub     650    b4   $aEducation, Primary$xCurriculums.
Sub     650    b4   $aTelevision in education.
Sub     650    b4   $aEnvironment$xStudy and teaching.
Sub     650    b4   $aConservation of natural resources$xStudy and teaching.
Name    700    10   $aKick, Marie.
```

k. Added entry -Corporate name

Card format (extract from Figure 3)

5. Conservation of natural resources - Study and teaching
I. Kick, Marie. **II. Australian Children's Television Foundation. III. Curriculum Corporation.**

(Tag) 710 Added Entry-Corporate Name

First Indicator: Type of corporate name
- 0 Inverted name
- 1 Jurisdiction name
- **2 Name in direct order** → 1st Indicator = **2**

Second Indicator: Type of added entry
- 0 Alternative entry
- **1 Secondary entry** (of lesser importance than author) → 2nd Indicator = **1**
- 2 Analytical entry

Subfield codes:
- **$a Corporate name (NR)** → **$a**Australian Children's. Television Foundation.
- $b Subordinate unit (NR)
- $c Location of meeting (NR)

Note: Above process is repeated for the second Corporate name added entry in our sample record. See below:

MARC OPAC (extract from figure 4)

```
ISBN    020    ƀƀ   $a1863660852
Call N  082    04   $a333.707$bLIF$220
Title   245    00   $aLift-off to the environment$h[kit] :$bvideo and book package.
Pub     260    ƀƀ   $aCarlton, Vic. :$bCurriculum Corp.,$c1993.
Phys    300    ƀƀ   $a1 Video cassette, 1 book.
Series  440    ƀ0   $aLift off in the classroom.
Note    500    ƀƀ   $aBook written by Marie Kick.
Sub     630    04   $aLift-off (Television program).
Sub     650    ƀ4   $aEducation, Primary$xCurriculums.
Sub     650    ƀ4   $aTelevision in education.
Sub     650    ƀ4   $aEnvironment$xStudy and teaching.
Sub     650    ƀ4   $aConservation of natural resources$xStudy and teaching.
Name    700    10   $aKick, Marie.
Corp.N  710    21   $aAustralian Children's Television Foundation.
Corp.N  710    21   $aCurriculum Corporation.
```

MARC - RECENT DEVELOPMENTS

In 1991, the National Library of Australia announced that the USMARC format would replace AUSMARC as the MARC standard for exchange of machine readable records within Australia. This took place as part of the re-development of the Australian Bibliographic Network (ABN). The following discussion examines the effects this development with MARC has had on the operations of the SCIS organisation.

AUSMARC TO USMARC AT SCIS

Background

Since 1984, SCIS has used MARC records (AUSMARC) to export its bibliographic records and to produce a range of catalogue products such as microfiche and ASCISRECON. SCIS has used the Dobis/ Libis library software platform to store its data. In 1991, Curriculum Corporation decided the time was right to secure a new software platform for the SCIS database as the existing Dobis/Libis system, whilst presenting an excellent cataloguing module, was becoming outdated and expensive to maintain. In 1993, Curriculum Corporation, after an extensive search, selected the Voyager software system from MARCorp of San Mateo, California, as the new software host. This American library software package is designed to process USMARC formatted data whilst the SCIS database exported its records in AUSMARC. In light of the National Library's decision to introduce USMARC as the national exchange standard and to avoid a costly modification of the Voyager system from USMARC to AUSMARC, it was decided that SCIS would convert to and export its bibliographic database in USMARC.

Conversion difficulties

Whilst notification of this change was sent to all school library software suppliers to prepare their automated systems for USMARC records, staff at SCIS and its facilities management contractor, Ferntree Computer Corporation, began the task of converting the SCIS database from AUSMARC to USMARC.

The first step in this task was to establish which AUSMARC codes SCIS used to export its data. This process revealed two problems. Firstly, SCIS data is stored in the language of the Dobis/Libis system. This is not a MARC format and consequently it cannot be exported from one site to another. The SCIS data is thus converted from these codes to AUSMARC. Slight modifications had been made to some AUSMARC codes to accommodate the Dobis/Libis language which in effect meant that SCIS's version of AUSMARC wasn't quite pure. Secondly, records were also discovered with incorrect AUSMARC coding. These errors and modifications had to be corrected before the conversion to USMARC.

AUSMARC versus USMARC

After confirming the AUSMARC codes used to format the SCIS data, the next step was to compare the AUSMARC codes with those of USMARC. The USMARC concise and full formats volumes were essential to this task. These manuals were ordered from the Library of Congress and took quite a while to arrive, therefore some delay was experienced before this vital step in the conversion could begin.

With the AUSMARC and USMARC formats in hand, a detailed cross check and comparison of the AUSMARC and USMARC tags was undertaken. This task was not as straightforward as it appeared. Unfortunately, as the following examples illustrate, it was discovered that not every AUSMARC tag, indicator and subfield code has an exact partner in USMARC (see examples 6 and 7). In many cases AUSMARC tags offer a wider range of subfields than USMARC, or they provide subfields that can be repeated with the AUSMARC tag but not with the USMARC (see example 8).

Example 6 : Different subfield codes.

With the AUSMARC personal name tags, 100, 600, 700 and 800 there is a subfield code for surname (**$a**) and one for given names (**$h**). In USMARC however, all of the name information must be placed in the one subfield (**$a**)

AUSMARC: 100 10 **$a**Clarke**$h**David
USMARC : 100 1b **$a**Clarke, David.

Example 7 : Different tags and indicators.

With the AUSMARC tags for corporate names, 110, 610, 710 and 810 the name of a direct order conference name is recorded with the first indicator position equal to 3. In USMARC this information is placed with a completely different set of tags i.e. 111, 611, 711 and 811.

AUSMARC: **110 30 $a**Expo 70**$j**Osaka, Japan
USMARC : **111 2b $a**Expo 70**$c**(Osaka, Japan)

Example 8 : Different repeatable subfields

With AUSMARC Tag 245 all subfields except for $m (GMD) can be repeated. With USMARC Tag 245 only a few of these subfields can be repeated. The data normally placed in the repeated AUSMARC subfield has to be inserted into a single USMARC subfield.

AUSMARC: 245 14 **$a**The cat's claw**$a**The dog's teeth**$d**R. Rover
USMARC: 245 14 **$a**The cat's claw. The dog's teeth /**$c**R. Rover.

Differences, as illustrated in these examples, between the two MARC codes occur frequently, all of which had to be carefully incorporated into the conversion program.

PUNCTUATION

Once all the AUSMARC data and control fields and the leader had been matched to their USMARC counterparts, the next major stage of the conversion involving punctuation was addressed. This proved to be a major headache. The problem boiled down to the fact that USMARC records require, in the majority of instances, punctuation to be included with the bibliographic data and AUSMARC doesn't. In other words, USMARC requires the cataloguer to insert punctuation when creating the record and AUSMARC does not. The following examples illustrate some of the problems this fundamental difference between these two versions of MARC presented for the conversion process at SCIS.

Example 9

In a USMARC Tag 245 (Title data field) with subfields $h (GMD), $b (Additional title information) and a $c (Statement of responsibility), the **$h** data requires parentheses, the **$b** subfield needs to be preceded with a space colon space and the **$c** requires a preceding space slash space. The field ends with a full stop. The equivalent subfields in AUSMARC Tag 245 require no such punctuation with the data.

AUSMARC
245 14**$a**The cat's pyjamas**$m**sound recording**$b**the musical**$d**T.Moggie
USMARC
245 14**$a**The cat's pyjamas**$h**[sound recording] : **$b**the musical / **$c**T.Moggie.
▲ ▲ ▲ ▲
parentheses space slash space full stop
space full colon space

AUSMARC relies on output programs (those written to produce cards and microfiche) to insert the appropriate punctuation. If this part of the conversion was not handled correctly two problems would occur. Firstly, the SCIS records on the new Voyager database would display some records with punctuation and others without or with incorrect punctuation. Secondly, output products such as the cards and microfiche would duplicate these errors.

The next task involved identifying what and where each mark of punctuation was required and incorporating into the conversion program a component which would insert appropriate punctuation into all the records on the SCIS database. This was complicated when confronted with certain tags such as 110, 610, 710 and 810 where the type of punctuation applied to a particular subfield is determined by the nature of the other subfield codes appearing in the field.

Example 10

> With Tag 110, if the $d (date of meeting subfield code) is preceded by a $n subfield code, a space colon space, must precede the $d.
>
> 110 2b $aCatholic Church.$bPlenerary Council$n(2nd : $d1866)
>
> Yet if there is no $n in the field, this particular punctuation is not required.
>
> 110 2b $aCatholic Church.$bPlenerary Council$d(1866 :$cRome, Italy)

The conversion program has now been completed and tested with pleasing results. Testing detected only a small percentage of records being 'dropped' because they could not find a USMARC address. These errors occurred because of mistakes in the original SCIS data, such as incorrect AUSMARC coding, which had escaped earlier checking procedures. Testing also indicated that the insertion of punctuation into the SCIS data was successful.

VOYAGER AND SCIS

In the early months of 1995, after continual testing of the conversion program, the entire SCIS database was converted to USMARC and a tape carrying the data was sent to the United States for loading into the new software platform. On its return, extensive testing was undertaken which involved running the two databases, Voyager and Dobis/Libis, side by side to ensure, among other things, that the conversion from AUSMARC to USMARC had been successful. In February, 1996, the Voyager database containing the SCIS database in USMARC format was made available to all subscribing Australian schools for online access. Currently all SCIS products are produced off the new Voyager platform in USMARC format.

CONCLUSION

Using MARC doesn't require a teacher librarian to have a deep understanding of computers. A MARC record, whether it be in AUSMARC or USMARC format, contains the same information found on the humble catalogue card but arranges it in such a way that it can be read and managed by a computer. MARC assists both non-automated and automated school libraries alike. In regards to the former, MARC enables the production of essential library catalogue resources, such as cards and microfiche giving teacher librarians access to thousands of bibliographic records. For automated school libraries, MARC provides the means for the exchange of catalogue records from a central database via disks which can be loaded into cataloguing modules and altered to suit a library's local needs. MARC therefore enables libraries to share cataloguing information and reduces the time teacher librarians need to spend on manually maintaining their library catalogues.

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Factors Influencing the Selection of Automated Library Systems in Victorian Independent Schools

Rosemary C. Abbott

INTRODUCTION

This research was brought about by extensive contact with librarians who had automated, or were in the process of automating, their school libraries. Many of my colleagues felt they were entering a potential minefield. The selection of a system is a major decision, both in terms of cost to the school involved, and in terms of the credibility of the teacher librarian making the decision.

Teacher librarians need to maintain their professional standing, particularly with regard to the use of technology to provide services. I believe this professional standing is diminished when automation is done in a thoughtless way, without thorough investigation of the possibilities or without a realistic budget. Often these factors are out of the control of the teacher librarian concerned.

I believed guidelines would be appropriate and useful for those yet to automate. They would be of particular relevance if based on the experience of those who had already undertaken automation.

I firmly believe that the more expertise teacher librarians have, the better placed they will be to demand from vendors systems which better meet their needs. Significant changes in education, particularly those evident in the Victorian government education system, have meant that teacher librarians are facing the challenge of meeting increasingly more sophisticated requirements by their users. It seems logical that teacher librarians will require greater sophistication of the automated systems they install. Circulation control and ease of cataloguing have become less significant than OPAC design and compatibility with other technology (such as multimedia, online databases, and the Internet).

OVERVIEW OF THE RESEARCH

The purpose of the research was to determine the essential elements of a successful method of selection of automated systems. In the independent school system, the selection process tends to be one-off, i.e. school by school. Schools do not always expect to re-invest in technology; automation of library management systems is often seen as a once only exercise. There is considerable pressure on teacher librarians to make the right choice, yet there was relatively little literature available which related specifically to the selection of library management software for schools

If teacher librarians are not perceived to have the required knowledge or expertise in these matters, then the decision may be placed in the hands of others; thus lessening the teacher librarian's credibility and possibly lessening the chances of the system really meeting the needs of the library's users. Yet the selection they make may not always be accepted by the school administration. Funds may often be limited. Cost may become the crucial factor in selection. The decision for the teacher librarian may then become whether or not to wait for what is really desirable or to take the 'bird in the hand' approach.

The focus of service in school libraries is shifting. Their provision of a static collection, however good, is no longer adequate. School libraries are becoming gateways to wider information networks. Automated systems are thus no longer seen as mere 'housekeeping tools'. They must provide that essential access to an ever increasing variety of sources of information such as multimedia, online databases and the Internet. Shortcomings of the system selected may therefore have serious ramifications for the ability of the library service to meet its users' needs.

Objectives of the research

- to establish what factors are brought to bear on the selection process - both positive and negative influences
- to establish which strategies have been most successful
- to develop a method which can be applied to the selection of a system in any Victorian independent school library.

A number of hypotheses were developed:

- the expertise of the teacher librarian concerned has an effect on the quality of the system chosen
- there are not sufficient sources of information available to assist in the selection process
- there is a tendency to want to purchase the current favoured system
- greater expenditure does not ensure that the system purchased is more likely to meet requirements
- the State Education Authority recommendation will have an impact on the selection process

- the 'safety in numbers' concept has an impact on what is selected
- the use of a consultant has an effect on the selection of a system.

There were underlying assumptions made for the purposes of this research:

- all school libraries/teacher librarians are heading in the direction of automation
- teacher librarians are the people to do the selecting - although it is also recognised that some assistance will be beneficial.

ANTICIPATED OUTCOMES

It was hoped that the research would build on existing knowledge by providing a better theoretical base for what was already known. It aimed to develop existing experience into a logical process. It was also anticipated that it might give those outside school libraries (school administration, teaching staff and computer companies) some understanding of the complexity of the process and the functionality required of systems.

THE RESEARCH PROCESS

After completion of a literature analysis, I believed there was not a sufficiently substantial theoretical base from which to work. For this reason, a case study was undertaken to provide a more substantial basis for further research. This involved a large independent school library. Selection here was a lengthy, complex process. It was fraught with problems. A great deal of money was being invested. The teacher librarian had considerable expertise. Consultants were brought in. All the factors considered as potential hypotheses were thus covered within this case study.

A questionnaire was subsequently developed. This was sent to post-primary teacher librarians in independent schools in Victoria, including the Catholic schools sector. This questionnaire was divided into five distinct sections:

Section 1 was intended to build up a profile of the library, particularly of the teacher librarian.

Section 2 was concerned with background data; who perceived automation was necessary and why. I was interested to see if there was a common approach in the reasons for automation.

Section 3 dealt with the selection process. I had made the assumption that the teacher librarian was the best person to select; I was interested to see if this was what actually occurred. Planning and evaluation were covered. 'Safety in numbers', 'current favourite systems' and the effect of 'recommended systems' were examined. By asking questions about the time taken, the selection process format and who was involved, I hoped to see if a common pattern emerged that would allow me to make some recommendations.

Section 4 dealt with what was purchased. The questions were intended to see if a 'favourite system' emerged.

Section 5 examined how successful the selection techniques of participants appeared to be. Some questions asked them to list problems; others asked for a response to 'would you do the same again?'

The total number of surveys distributed was 127. Of these, 93 were returned (one school had closed). Therefore, the participation rate was 73 per cent.

The following variables were cross-tabulated:

- Expenditure and success of selection
- Expertise of teacher librarian and success of selection
- Decisions made by people other than the teacher librarians and the success of selection
- Use of consultant and the knowledge of the teacher librarian
- Who investigated and the knowledge of the teacher librarian
- Use of consultant and success of selection
- System purchased and the time of selection

This study did not attempt to make universal claims. It was concerned with a very small population and was really only intended to be of value to that group (librarians in Victorian independent schools).

RESULTS OF THE RESEARCH

1. Successful strategies

A relatively small number of strategies emerged from analysis of the surveys. The differences in approach tended to focus on who was involved and how long selection took. Most strategies were felt to be successful by those who developed them. A common thread did, however, run through many of them.

Teacher librarians prefer to be in control of the situation. They prefer not to have anything imposed on them. Generally, where the entire library staff was interested and involved, the selection process ran more smoothly. Those who took the time to plan found that selection was easier.

Reading journals, conference papers and other literature was seen as a useful starting point; it established a basis for the more practical investigation. One respondent stated 'reading about automation is no substitute for doing it'.

In terms of establishing goals/objectives and requirements in a needs analysis, most teacher librarians relied largely on their own knowledge. The majority looked at systems running in other libraries to help formulate their needs. The most successful investigations involved many site visits, vendor demonstrations and discussions with colleagues. Not all systems were assessed by means of a checklist. Thus it was not always an analytical evaluation of a system where numerical scoring was the result. Yet, according to the responses, this did not significantly diminish the chances of that system's success.

Submissions were written in the majority of cases (86 per cent). Most of there were directed to the school principal. They involved justification of automation and/or evaluation of the systems investigated.

Respondents felt that the investigation and selection should take as long as necessary to 'get it right'. When the final decision was reached, it seemed that success was more likely if the teacher librarian had made the decision (even if in consultation with the principal or others). Teacher librarians clearly need to 'own' the final selection and thus have commitment to the success of a particular system.

Teacher librarians who seemed happier with their systems were usually involved in a user group. This appears to ensure ongoing satisfaction; user groups have input to vendors and can influence the development of the system.

Most respondents felt that their individual strategy was successful; however, it is clear that they all rely heavily on other teacher librarians for advice and moral support. Relatively few comments were made with regard to changes they would make to the selection process next time. Some felt it may be a little easier now; there are more products to examine and more sites to visit. We are all further down the automation path.

FACTORS INFLUENCING THE SELECTION PROCESS

Positives:
- commitment of all library staff
- knowledgeable teacher librarian
- adequate finance
- adequate time to investigate and select
- having time for sufficient site visits
- use of formalised checklists
- cooperation of other librarians
- good PR work carried out with school administration, teaching staff and students

Negatives: a finance-driven decision
a hardware driven decision
lack of interest by other library staff
the decision being imposed from above by the principal or school business manager
inadequate time being given for the selection process
inaccurate vendor claims
the need for compatibility with other systems already in the school being the major reason for choice
vendor failure or changes in ownership (both relatively rare)

CONCLUSIONS BASED UPON THE ORIGINAL HYPOTHESES

'The expertise of the teacher librarian concerned has an effect on the quality of the system concerned'

The majority of teacher librarians in the survey had very little prior experience in automation. Very few had been involved in the selection process before. Most of them had trained too early to have gained any expertise through their library courses. Most, however, felt they had good knowledge of automated systems. Certainly, they were convinced they were the ones to do the selecting (usually in conjunction with other library staff and sometimes with information technology staff). The overwhelming majority of teacher librarians decided themselves that automation was desirable.

Table 1: Major reasons for automation (frequencies and percentages)

Reason	Freq.	Percentage
To extend services	29	35
To automate manual routines	17	20
To save time	5	6
To overcome catalogue problems	5	6
To keep up with other libraries	3	3.5
Access to wider technology	3	3.5
Unranked	21	25
No response	1	1

Relatively few teacher librarians appeared to develop a formal needs analysis for their libraries. From the responses received, the first step in selection was not the preparation of goals/objectives, users' needs or purposes of automation. Rather, it was the examination of systems running in other schools, taking vendor advice and relying on personal knowledge. A more formalised approach to the preparation of a needs analysis may be of benefit. This is certainly how the selection process begins in many non-school libraries.

Generally, teacher librarians took considerable time to select a system. The process took between six and twelve months. At one extreme, it took only two months and at the other eleven years. In the majority of cases, the teacher librarian in charge made the final selection. This was sometimes done in consultation with others. Most respondents were happy with the way selection had occurred. Few said they would vary the process. If changes were listed, they were with regard to the time taken, seeing more sites and using formal checklists.

Most teacher librarians were pleased with the system they had purchased. There was certainly a high rate of satisfaction amongst those who felt they had considerable expertise (100 per cent would repurchase the same system). The figure drops in the group with good knowledge (76.4 per cent) and further in the group with limited knowledge (54 per cent). It would therefore seem that levels of expertise do indeed have a bearing on the success of selection.

'There are not sufficient sources of information available to assist in the selection process'

There was a variety of opinion on the most important sources of information. Respondents preferred practical, hands-on experience; site visits received the highest number one ranking in the survey. Many listed other librarians as a useful source. Comments made indicated that discussions with colleagues would allow certain shortcuts to acquiring the essential information. Some did doubt the frankness of their colleagues. Vendor demonstrations were also frequently cited as a source of information; vendor literature did not rate nearly as well. Not all respondents felt that there were sufficient sources of information. There was mention of the need for more 'experts' in the field.

Table 2: Sources of information by degree of value/use

Source	1 (valuable)	2 (useful)	3 (limited use)
Vendor literature	9	45	17
Vendor demonstration	40	24	7
Journal literature	12	45	10
Conferences	19	22	17
Site visits	64	11	1
Colleagues	35	25	6
Inservice Education	9	30	19
Consultants	7	23	27
Ministry Recommendations	1	-	-
Writing to other schools	1	-	-
No response	2	-	-
Not yet at this point	3	-	-

Given the response rate to sources such as journal literature, vendor literature, conferences and consultants, it would appear that teacher librarians see the most valuable source of information as anything they observe first hand. They want to try systems out, see what they can do, talk to users. These findings largely dispute this hypothesis. Perhaps it is best qualified by saying that there are not sufficient objective sources available to teacher librarians 'in the market'.

'There is a tendency to want to purchase the current favourite system'

Respondents seemed to focus on selection criteria featuring proven software, followed by a concern with capital costs. Vendor reliability was also a consideration. It is a pity there weren't annual surveys of vendors available to teacher librarians in Australia; they would be a valuable source for comparison.

Most teacher librarians evaluated around four systems. These covered a very wide range in terms of type, size, level of sophistication and cost. No clear favourite system emerged. However, Dynix did have a slight edge. This lead would appear to have increased with the most recent purchases detailed in the survey.

It was hard to prove or disprove this hypothesis. Looking at which systems were evaluated, it is clear that what people are selecting influences what other people are prepared to consider. The difficulty is that Victorian independent schools represent a relatively small market. The number of sales is therefore quite small. It was difficult to extrapolate anything significant from these figures.

'Greater expenditure does not ensure that the system purchased is more likely to meet requirements'

Generally, teacher librarians said they were happy with their choice of system. There were relatively few complaints with regard to technical aspects such as down time or system response time. Most respondents felt that the OPAC design on their system was good (particularly by comparison with a card catalogue). Although vendor support was seen in a favourable light in most cases, there were some complaints. These tended to relate to the time taken to resolve problems. Such complaints related to nearly all systems installed; large, small, expensive, inexpensive. In listing the reasons for down time, non-functioning hardware was cited most frequently. Given that this was often newly delivered, the issue of quality control of hardware was raised.

Most respondents who said they would not repurchase the same system believed there were better products available. To a lesser extent, they believed other schools were happier with another system. Four respondents had bad experiences with a vendor. What was of interest was that three of the higher profile systems featured here; Dynix, URICA and Ocelot. Out of eleven respondents who would not repurchase, two had selected Dynix and three URICA. Both of these systems would require a considerable financial outlay by the schools involved. Thus, it would seem that spending a great deal of money is no guarantee of success.

'State education authorities making recommendations has an impact on the selection process'

When planning selection, very few respondents considered Victorian Ministry of Education recommendations. Only thirteen out of seventy three ranked this as important. Yet when looking at which systems were examined, the three recommended systems at the time were most frequently listed. The only non-recommended system frequently evaluated was URICA. Only one respondent evaluated systems with the Ministry recommendations in mind.

When it came to actually selecting their system, twelve respondents listed Ministry recommendations as having some influence on their decision. Of the sixty six systems in place at the time of the survey, seventeen were Dynix, eleven were Ocelot. The other recommended system at the time, OASIS Library, did not fare as well with four sites. All five of the respondents who had just selected at the time of the survey chose a Ministry recommended system (this included the two systems which had just been given provisional recommended status - Microfusion and AIMS).

'The "safety in numbers" concept has an impact on what is selected'

When planning selection, very few respondents rated the number of sites a vendor had as of consequence to them. Only three ranked it as a top priority. If one looks at the systems examined, some of them would not have been installed in any other independent school at the time (although they may have been in Ministry schools). By the time the final choice was made, the number who rated a product being well-established in schools as significant had risen to 14. A related factor emerged here; the importance of user groups. Thirty-six respondents had listed this; in fact it was the most frequent response to reasons for final selection. Teacher librarians in the survey believed that users of a system could have great impact as a group in influencing the development of a product. The conclusion here is that safety in numbers does have some impact, but not in the way originally anticipated.

Table 3:Systems selected (percentages)

Product name	% of sample
Dynix	27.4
Ocelot	17.7
Urica	12.9
Winnebago	8.1
OASIS Library	6.5
Bliss	6.5
Micmarc/Metamarc	6.5
AIMS	6.5
Microfusion	4.8
Prolib	3.2

'The use of a consultant has an effect on the selection of a system'

Those teacher librarians who ranked their personal knowledge in the area as extremely good tended not to work with a consultant. The number using consultants tended to increase as knowledge of automation was given a lower rating. Certainly, the perceived success of selection dropped where a consultant had been involved. Fifty three respondents completed this section of the questionnaire. Thirty-two per cent of these had some involvement with a consultant. Almost 30 per cent of this group would not repurchase the same system.

In some cases, consultants had a very peripheral role; being asked to give technical advice only. It is therefore important not to overstate any perceived negative impact of consultants. Peripheral involvement may have meant that the consultant had no part in the final selection of a system. The hypothesis was therefore qualified; the use of a consultant *may* have an effect.

ELEMENTS OF SUCCESSFUL SELECTION

Based on the literature and the survey findings, a more formalised approach to selection may be beneficial. A number of school libraries have yet to automate. Whilst each library is different, particularly in independent schools, certain constants exist.

In academic and other larger libraries, the selection process is quite formal. This is generally because large amounts of money are involved. It may also be because systems staff are involved; they bring an added dimension to the process. Friewer, Vinande and Bruns detail their protocol approach where an automation team is set up. [1] Such an approach may seem like overkill in the school library setting, but it will identify who should be involved. In fact, several survey respondents identified such teams (e.g. Computer Needs Assessment Team, Resource Centre Working Party). Such a team should result in a more united approach and consensus in the final decision.

A team of this kind would be involved in assessing the benefits of automation. The goals and objectives of the library service concerned would be formulated, i.e. a 'vision for the library' as described by Meddaugh and Way. [2] Of course, this may already exist. A detailed needs analysis should be prepared. [3] This should involve an overview of the library; location, staffing and users. All services should be described in detail. It may be beneficial, at this point, to carry out a cost-benefit analysis. These are mentioned somewhat infrequently in the literature although they were strongly recommended by the Victorian School Libraries Curriculum Committee. [4]

At this stage, the automation team should establish that adequate funds are available. There is no point in putting in an enormous amount of time and effort if there is insufficient money. A proposal to the school principal/administration/board detailing the need for automation and a projection of approximate costs would seem sensible here.

Information gathering should now occur. Members of the team should read journal articles and vendor literature. They must find out what is around and start to get a feel for what is possible and useful. A checklist should then be drawn up. Each library should prepare its own as individual priorities will differ. [5] This could be achieved in a number of ways; brainstorming ideas, using major headings - e.g. hardware, software - further broken down into circulation, cataloguing, and so on; using a consultant, or modifying an existing checklist.

One important consideration in the development of a checklist is OPAC design. Most teacher librarians said they automated to extend services to users, yet few respondents considered OPAC design significant when evaluating. Only one respondent ranked OPAC design as the most important criterion. Only fourteen ranked it as of any significance at all. O'Rourke argued that an OPAC-driven evaluation will make selection easier. [6]

Ranking of all requirements is necessary. Requirements should be categorised as **Essential, Desirable, Unimportant**. These categories could also build in a weighted scoring system. This may make selection simpler. It should also lessen the need for individuals to defend their preference.

Evaluation should include the following:

> **vendor demonstrations**: these require a certain amount of preparation. Work should be done beforehand to find out about the system. It is a good idea to go in a group so the vendor does not have the prospective buyer outnumbered
>
> **site visits**: it will be useful if members of the automation team go to more than one site running the same system. Adequate time must be allowed for such visits
>
> **discussions with other librarians**: most are happy to assist, having 'been there' themselves. A list of questions will make such discussions more productive.

Evaluation may involve a consultant. Such people should understand the requirements of the particular library. Unless they are clear as to individual needs, their focus may not be the right one.

The Automation Team should meet frequently at this stage. Any preference developed by individuals should be scrutinised. Evaluations should be formalised into a report. This should discuss the positive and negative aspects of all systems examined. This report should be finalised after any uncertainties have been clarified. It should include the library's requirements, evaluations of each system, comparisons between the systems, final recommendations and costs.

A number of developments are possible at this point. The school administration may request further evaluation - by the Automation Team, a consultant or the teacher librarian. Alternatively, they may decide to put out to tender; in which case, the needs analysis will be converted into specifications. The system vendors would then be asked to put in a tender proposal, upon which selection will be based. Obviously, the best possible scenario is that purchase is approved based on the proposal submitted by the Automation Team.

CONCLUSIONS

Selection of an automated system is a lengthy and complex task. Most teacher librarians surveyed believed that the combination of their expertise and the support of their colleagues made success possible.

In 1997, it is easy to think that everyone has 'been there, done that' and automated their school library. However, there are still a number of schools in Victoria which have yet to take the step. A number of these schools are approaching the point of 'upgrading' or 'migrating' their systems. It is quite possible that, with the burgeoning use of multimedia, the requirement for multiple Internet access and the development of school wide information networks, that some existing systems may be found wanting. Therefore, some of us may be facing the task of selecting a new library management system sooner than we anticipated!

Note: This chapter is based upon research carried out for a thesis undertaken as part of a Master of Business (Information Technology) degree at RMIT in Melbourne.

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Selecting a Second Generation Library Automation System: A Checklist

Jean Indermaur and Pru Mitchell

INTRODUCTION

This checklist was originally developed for the introductory session of an Association of Independent Schools of Western Australia (AISWA) Libraries group marketplace held at Christ Church Grammar School in June, 1996. The checklist and marketplace came about because several schools which had purchased their original systems between 5 and 10 years ago were considering the possibility of migrating their existing software to a second generation automated library system. A tool was needed to raise issues, to be a talking point within the school, and to clarify priorities which would establish a scheme of weightings from immediate necessity to probable future. Following the marketplace, the original checklist was revised with valuable contributions from Robin Wake of the Hale School who had pioneered installation of such a system.

Selection of an automated library system involves the same professional selection skills exercised in the management of all resources. Unlike books and multimedia resources there are few checklists of selection criteria available, especially at this stage, for Windows-based library systems. It appears that most systems now provide a common level of functionality, building on the core elements of circulation, cataloguing and searching. The selection decision now centres upon issues not directly related to library processes. Schulman identifies four of these issues as:

- technology integration
- partnerships
- service organisations
- vendor's financial stability [1]

Since the appearance of the first library automation systems, there have been major changes in the extent of **technology integration**. Interactivity of hardware, operating platforms, networking and software is a key issue which has affected many areas of systems development. It is now expected that access to the library database and all multimedia resources will be available in classrooms, staffrooms and from home. Internet access also has to be acknowledged. **Partnerships** need to be strong between libraries, system providers, technical support staff and user groups. The diversity of required expertise coupled with the speed of technological change, demands good communication, acknowledgment of specific skills, and a shared vision.

For users of existing library systems there is little need to stress the importance of user support **service organisation** in the long term operation of any library system. Evaluation of user support needs to involve consideration of cost, delivery of stated guarantees and personal references from several existing users to counteract subjectivity and personality factors. Commitment to a system involves acceptance of the support organisation. The issue of a **vendor's financial stability** is obviously linked to user support, but perhaps just as importantly the issue of ongoing research and development must be considered.

The actual process of migration from an existing system involves several major hurdles. Each site's migration could be different, but all parties need to be aware of the ramifications of changes to hardware, operating system, software, or all three. Catalogue data is probably the single most valuable asset, and any library specific content is irreplaceable. High priority must be given to measures that will eliminate any risk to the quality of this information. The cumulative effect of so many changes at the one time multiplies the potential for confusion. If problems occur there are many new combinations of variables to consider. At this stage, most Windows based library systems are in their infancy, and are continually undergoing development, testing and refinement. Libraries installing new systems, need to carefully weigh up the benefits and disadvantages of implementation during this development period versus waiting for the more developed product. Being a pioneer often involves the library in increased costs, time and stress, but for some schools such a 'risk' can be offset by involvement in the development process.

The following is a suggested process for using this checklist in the selection process:

1. Identification of library and school priorities in consultation with Information Technology, Management and Finance bodies.

2. The following generic checklist is used to develop a document specific to these needs. (It should be recognised that the first four pages of the checklist are whole school issues, and cannot be considered by the library alone).

3. This document is forwarded to library automation suppliers, who provide a tick or simple comment to each point.

4. Having received the forms back and considered the answers supplied it is possible to cut down the number of systems to view, and to back that decision with points raised in the checklist.

5. View and test the shortlisted systems in a hands on demonstration checking the same major functions on each system. Test on the same hardware configuration which is available in the school to make comparisons more valid. Performance needs to be checked not just in terms of speed and outcomes but in procedures.

6. Further evaluation and refinement will then be necessary before reaching a final decision and commencing contract negotiations. There is, however, a trap in spending too long checking out the systems, as by the end of the checking period, the software will have developed further.

In summary, not all schools will need to consider all points, and as schools use the list and discuss the ramifications of each point, other issues may come to mind. It is a long, detailed and unfortunately (or perhaps fortunately) never complete list. Schools will have other questions. And finally, no product is perfect. Good hunting!

LIBRARY AUTOMATION SYSTEMS SELECTION CHECKLIST

This checklist is intended primarily as a list of issues for discussion by those considering new library automation systems. It is NOT a list of REQUIRED or even recommended features, but might alert those considering different systems to questions to ask. By using the columns on the right it may also be useful for basic comparison of systems.

System Issues	A	B	C
Operating System			
What is the Operating System?			
PICK			
UNIX			
DOS			
Windows - NT / Windows 95			
OS/2			
Other			
How old is the Operating System?			
Who supports the Operating System?			
What is the user base and type of user?			
Does the library software have ability to operate on a variety of Operating Systems?			
Does Operating System allow true multi-tasking on each computer?			
Is Operating System compatible with other software packages you wish to run on work stations? - eg DOS & Windows applications.			
How easy/what is likelihood of changes to the Operating System in near future?			
What degree of exposure to Operating System is required by staff?			
If Operating System knowledge is required, what training is provided for?			
Can the school use an existing Operating System. (Advantage is that Academic pricing may be available to school)			
What number of Concurrent Users and Licences do you need? What is cost - at purchase and ongoing annual fees?			
What level of technical expertise is required for system administration? Familiarity level of your technical support people is an issue.			
Consider the issue of school-based technical support people without library background. Do they understand connections between Operating System and library software? Is specific training/support available for this group?			

System Issues	A	B	C
Database Management System			
Which database is being used?			
What is the proprietary nature of company - is it a reliable, stable product which will develop?			
Is it a true relational database?			
Consider support of the database/upgrades /compatibility with operating system and software			
What number of Concurrent Users and Licences will you need? Cost at purchase and ongoing annual fees?			
Networking Environment			
Which Network systems are supported by the library software?			
Windows NT (different versions)			
Windows 95			
Windows for Workgroups 3.11			
Novell			
Is Academic pricing available for this network software?			
To what extent is Client-Server relationship used?			
Does the network software support concurrent users and different licence agreements for the variety of software/CDROMs you purchase?			
Does network support different hardware platforms, eg Macs, Acorns on school network so they will be able to run Enquiry/OPAC module?			
Consider security issues and features of Network, including offering Internet access to Catalogue.			
Compatibility and Connectivity			
Compatibility - will library software work with existing school hardware and software, and/or with future systems?			
Connectivity - how well does library software fit into rest of school networking? Keep in mind present and future plans for school.			
Is library software compatible and will it connect with school administration system for functions such as student information, charging accounts, address changes, faxing orders, class lists, timetable information?			
Connectivity with school curriculum networks eg Remote reservations, Room bookings, email of notices, campus wide bulletin boards, reporting?			
Scalability of system - from one to many users. How cost effective is it? Does system allow for later growth?			
Does library software on chosen network deal with collections spread across different campuses, department collections, or other libraries?			
Can existing modems, printers etc on network be used by library software? Can specialist printers etc, eg spine labels be dedicated to library use?			

System Issues	A	B	C
Do library software and network facilitate faxing and email of orders, notices etc out of the school direct from workstation?			
SECURITY issues to be considered at network, operating system, workstation, and software level. Who is responsible for this?			
Are security features of library software compatible with school policies and practices on access and security, eg schoolwide passwords, hard disk lockout software, virus scanner etc			
Internet			
Does supplier support the library software over the Internet?			
Can MARC records be downloaded direct from Internet sources?			
Is there a World Wide OPAC interface available? eg WebPac			
Can http links to Web sites be catalogued in MARC tag #?			
Can OPAC be made available over a school Intranet using existing Web browser software, eg Netscape, Internet Explorer?			
Hardware Issues			
Ensure demonstration on comparable hardware to your own, ie memory, processor, etc to test response speed. Check exact version of software to be used			
FILE SERVER			
Dedicated			
Whole school or just library / links to other servers			
486			
Pentium			
Other			
Uninterrupted Power Supply			
Tape drive - DAT, size, compatibility with existing network backup			
WORKSTATIONS			
Intelligent Pentium			
486			
386			
Other			
Dumb terminals - ability to use in transition period			
Ability to upgrade/add memory to existing work stations			
Sound card needed for auditory warning signals eg Overdues, Confirm delete?			
Mouse issues - familiarity level of staff and users, maintenance, are alternatives available eg function keys, touch screens etc?			
Number of peripherals needed, eg mouse, printer, light pen, modem			

System Issues	A	B	C
Consider workstation functionality required, and numbers, location of each. • Dedicated: enquiry/OPAC only • Extended: shared enquiry, CDROM, Internet, Word processing etc • Fully Functioned: complete library software package plus full network functionality.			
BACKUP MEDIUM AND FREQUENCY			
Tape			
Disk			
Backup to disc/tape/another server on network?			
Up to the minute recovery?			
Mirroring of database			
Full database and software backup?			
Frequency? Complexity? Time involved?			
Able to set as automatic in library closed time?			
Checks of data consistency? Are error check reports meaningful and able to be dealt with by library staff?			
Transaction logging			
WARRANTY			
How many years warranty is provided for each component?			
Is warranty on basis of onsite or return to depot? At whose expense?			
Installation			
Specified person - company or school-based?			
Is school-based technician able to be involved and save costs?			
Who coordinates whole project?			
What is anticipated time frame based on other similar installations?			
What is complete cost of installation? What does this include?			
At what point is installation complete? Who is responsible for: • Software and data on server • Software on work stations • Server linking to network • Whole network fully functional with library software working			
Who will install software after initial period, eg install more workstations or a network installation? Cost?			
If data and system parameters are loaded for you, do you get to fully understand this process at training?			
What is the linkage between installation of hardware and software?			
Has support for 'trouble shooting' been allowed? - this time should not come from annual software support hours.			

Library Automation Issues	A	B	C
Migration from Existing System			
If system is not fully developed at stage of installation, is there a mechanism for running modules from both existing and new system at once?			
If undergoing phased migration, how does software deal with a system conflict or failure in either old or new module?			
Use of existing barcodes. Any reprogramming needed?			
Use of two formats of barcode after migration. Will existing barcodes conflict with error checking processes?			
Time frame - Can it be fitted in during school holidays?			
Ability to convert existing data - quality, maintain existing fields?			
Relationship of converted data to new system?			
Cost of data conversion?			
Is circulation data included? What to do while data being converted?			
Are Authorities converted?			
Non-MARC to MARC conversion? Fields to specific tags?			
Trial data conversion for checking before full conversion. Test data representative of range of records?			
'Warranty period' on data conversion. Need to check closely.			
Cost of migration in terms of obsolete stationery/supplies/hardware, eg barcodes, streaming tapes, wide carriage printer, cabling etc.			
Library Management Software			
How complete is software? How much development is due? When?			
Client/Server?			
Ease of movement between modules and within a module			
Full Windows functionality with common Windows format used through all modules			
Pop-up Windows display adequate number of characters			
Screen display - attractiveness, colour control, ease of use, functionality			
Ability to tailor screen display at each location, or workstation.			
Flexibility to control and easily change data display in terms of fields displayed, column width etc			
Mouse and function keys/keyboard input available throughout			
Standard Mouse functions, eg drag, highlight etc			
Context-sensitive Help throughout software modules, Able to edit it			
Security issues at software level			
Ease of movement between modules - users and data			

Libary Automation Issues	A	B	C
System Administration			
Maintenance of calendar			
Alerting System Administrator to required tasks and errors			
Cleaning up data files			
Processing at end of day - time, convenience, automatic process			
Indexing process and maintenance			
Ability to proof read data entry by other staff - limited by date and operator			
Ease and security of maintaining passwords etc			
Training – Cost and Availability			
Self-paced tutorials available before installation/pretraining			
Training on-site at installation			
Who needs to be trained? All staff, system admin staff only or certain staff for certain modules?			
Possibility of training in segments - enough to get going and then a later session to settle problems			
On-site follow ups			
Local / Travel involved			
At Call			
In built self-paced tutorials remain on machine for new staff			
Availability of a separate training database, not affecting own data			
Advanced training sessions or self-paced manuals available in future			
System Administrator training - ability to setup and change own system parameters, and train own staff to assist			
Training available for Operating System, Library Software and any other modules, eg Report writer software?			
Training available for Technical/Hardware support staff?			
Licensing			
Once off fee vs Annual			
By Module or Overall Licence			
Separate Operating System and Software Licences			
Costs - sliding scale for large quantity eg Enquiry module in labs			
Concurrent vs Total number of users			
Support			
Local / Interstate / 1800 number / Internet			
Personnel - Teacher Librarians, Technical, Programming, and Networking experts available			

Library Automation Issues	A	B	C
Who is ultimately responsible? Overall coordination			
What problems might arise if technical and software support come from separate places?			
COST By Module or By Licences			
Annual / Per Hour / Special Call-out eg Public Holidays			
User Group			
How large and active is existing local User Group?			
Is there an Internet listserv or equivalent means of ongoing contact?			
How experienced and willing to help are User Group members?			
What input is possible with regard to updates, enhancements etc?			
Updates			
Free / At cost / What if software is not complete when installed?			
Regularity of upgrades/enhancements			
Frequency and degree of disruption. Continual learning demands on all staff and also users			
Is it necessary to take all upgrades, or only major releases?			
Does a new release of operating system or database software require upgrading library software?			
What documentation and training is available for upgrades?			
Ability to influence enhancements			
Strength of User Group			
Type of Library driving the User Group and enhancements, eg school, public			
Circulation			
Keyboard functions available throughout rather than mouse if using handheld scanner			
Barcode and keyboard entry of barcode, name, title etc available			
Date formats - Australian. Set by Circulation software not Operating System			
Ease of operation of basic CheckOut - eg student volunteers, staff in department offices			
Security			
Backup system if Circulation is down			
Ease of loading portable or backup circulation data back into main system			
Privacy of patron information			
Ability to tailor reports			
Message capabilities between staff and between users and staff			

Library Automation Issues	A	B	C
Convenient ways to add and remove Check In notes or comments, eg damage at circulation			
Usage statistics - patron and item, current statistical period and overall use			
Sophistication of financial transactions, eg payment, fines, book hire fees			
Student information			
Ability to download from administration systems?			
Photograph of patron displayed as part of record?			
Ability to link patron information with administration features such as timetables, class lists, booklists, email addresses, PINs			
Overdue notices			
Students			
Teachers			
Classes / Homeroom etc			
Own input/Ability to edit format and output			
Export to email or word processor etc			
Reservations			
Catering for special collections - on reserve, departments			
Loan categories for different requirements			
borrowers			
Update - user categories			
- calendar			
Stocktake			
Partial			
Reports			
Detailed			
Costed			
Class / Bulk loans			
Loan history			
Statistics - graphical, export to spreadsheet etc			
SELF LOAN INTERFACE - Ability to link in with self loan facility			
Cataloguing			
Consider format of catalogue entry screen. How user friendly/well set out?			
Ability to customise / tailor screens - set up workforms for different types of resource			
On screen entry aids - code lists, definitions etc			

Library Automation Issues	A	B	C
Copy data from existing records to new record			
Ability to merge and duplicate records			
Ability to easily batch create holdings or item records			
Editing facilities - standard Windows word processing features			
Ease of adding, editing, deleting tags and subfields			
Ability to accept mixture of barcodes if migrating from an existing system			
Ability to accept non standard barcodes (eg negative or temporary barcodes for orders)			
True MARC compatibility including all defined MARC tags			
How are non MARC records handled?			
CATALOGUE RECORD FIELDS			
call number			
authors			
titles			
general material designation (gmd)			
edition			
publisher			
date of publication			
physical description			
series title			
series number			
notes / contents			
subject headings			
ISBN			
SCIS Order number			
MARC field for Internet addresses, graphics			
Review notes field to record age or level code, or Kids Catalog category			
MARC vs non-MARC Cataloguing format			
Catalogue Data Transfer and Tools			
SCIS catalogue data			
SCIS Subject headings and See references			
- Complete or Related to existing subject headings			
Curriculum Materials Information Service (Ed Dept WA)			
ABN / WORLD-1			
Dewey on CDROM			
Internet Cataloguing tools			

Library Automation Issues	A	B	C
Cut and paste from commercial records, eg CDROM			
Ease of importing records from disc and online services			
Indexing			
How / When			
Speed			
STOPPED Words - ability to add, delete, edit			
Authority Files			
Publisher			
Author			
Subject Heading			
Series			
Supplier			
GMD			
Location			
Departments			
Global Change on Authority Files			
See, See also and See also from references available			
One and two way links possible			
Linking multiple terms to one, eg. Several see references to a single-used term.			
Importing of authority records and method of matching and reporting on exceptions			
Level of integration of Catalogue entry and Authority records			
Acquisitions			
Entries linked to data base			
Budgeting			
Approvals			
Wish list			
Ordering			
Non-Book expenses			
Budget reports			
Electronic ordering direct to suppliers			
Interface with admin financial package, ability to check budget situation			
Electronic internal forms, eg cheque requisition by email			
Reports eg unfilled orders, budget reports			
PERIODICALS			
Separate Module or included in basic software package?			

Library Automation Issues	A	B	C
Can contents of individual issues be indexed by library?			
Can library load additional Periodical Databases into catalogue?			
Does periodical indexing integrate into existing subject authority or is it indexed independently as a separate search point?			
VERTICAL FILE			
As part of database for enquiry or separate?			
Scanning fulltext documents and indexing?			
Enquiry/Public Access			
User-friendly screen, emulates standard Windows formats to ease transfer of skills across different search tools eg CDROMs, Internet etc			
Library can customise / edit search screen to suit users			
Searches can be sorted in different ways			
Bibliographies can be printed from Enquiry in different formats			
Bibliographies can be saved to disk?			
Mouse use and management issues - user familiarity and behaviour			
Security of network - Windows 95			
Web search engine can be imposed for Internet-based Enquiry			
SEARCHES			
Global or cross-field keyword search			
Author			
Title			
Subject			
DDC			
ISBN/ISSN			
Location			
Series			
Keyword			
GMD			
Boolean search within fields and across fields - varied complexity			
Across index searches - eg subject and title keyword			
Ability to vary types of searches and fields searched to suit users			
Ability to set default search, or edit searches available			
Ability to easily narrow and broaden searches			
Truncation - left, right and embedded			

Library Automation Issues	A	B	C
Ability to determine own terminology and screen instructions			
Context sensitive help screens can be tailored by library			
Ability to set, sort, edit and print bookmarks			
Ascending and descending sorts of data			
Ability to sort by more than one criteria, eg location and title			
Ability to limit searches to one or more locations or media type			
Ability to limit searches by age level or review note if included in catalogue			
Ability to limit display of results by operators (=,>,<) to fields (date, publisher, place etc)			
Students ability to access own record, to reserve and renew			
Ability to output search results to screen, printer or text file			
Supports modem access searching			
Ability to access 'catalogued' html links to Internet or graphics, scanned items			
Provides list of bestsellers or newly acquired resources			
Bulletin board for community information or library notices			
Supports multi-user searching across network			
Ability to load bibliographic and full text databases eg Guidelines			
- As part of general data base			
- As separate access point			
General Reports			
Borrowers by Barcode			
Name			
Group			
Class			
Catalogue by Subject			
Title			
Author			
Series			
Data Validation			
Publisher			
Author			
Subject			
Series			
General Resources			
Statistics			

Library Automation Issues		A	B	C
	Resource use			
	Borrower use			
	Loan activity			
Print	Borrower cards			
	Catalogue cards			
	Barcode labels			
	Spine labels			
User defined printing options				
	- printing from enquiry according to library restrictions			
	- adequate control of length of field in printout			

GLOSSARY OF TERMS USED IN THE CHECKLIST

Client Server: A Client/Server system performs processing on workstations (clients) as well as the server. This speeds up processing and enables greater control over output by clients. It also requires a more powerful server and workstations.

Intranet: 'A "private" Internet - it is characterized by the design and use of Internet technologies within an organization, rather than for external connection to the global Internet. It exists behind one or more firewalls, but is accessible internally by employees either directly or through the Internet and often by suppliers and customers who have a password.' [2]

Multi-tasking: For each task the computer carries out functions concurrently as opposed to performing sequential functioning.

Relational database: Once only entry of information which is reflected throughout the system by means of pre-determined relationships.

Z39.50: 'Z39.50 is a national standard defining a protocol for computer-to-computer information retrieval. Z39.50 makes it possible for a user in one system to search and retrieve information from other computer systems (that have also implemented Z39.50) without knowing the search syntax that is used by those other systems.' [3]

REFERENCES

[1] Sandy Schulman, 'Have Library Systems Become Commodities?' *Information Today* 13 (May 1996): 58.

[2] Brown Computer Solutions (1996). Web Words
Available WWW: http://www.browncs.com/intranet.html

[3] Library of Congress (1996). Z39.50 Gateway
Available WWW: http://lcweb.loc.gov/z3950/

Hidden Treasures: Creative Interrogation of Your Library Database

John Lee

INTRODUCTION

The role of the teacher librarian continues to change and grow as time passes, yet, for many administrators and teachers, the perception of the role remains that of the stereotypical bespectacled 'refugee from the classroom' or the school 'dragon' guarding the library resources, daring anyone to use them. If such stereotypes ever existed, they are long gone, yet the perception, unfortunately, remains. Teacher librarians have had to adapt because libraries have changed in response to the many social changes of the age. Compared to school libraries, most classrooms are anachronisms. Many in the field are arguing that even the term *library* is not appropriate in today's circumstances.

The development of the computer and the subsequent exponential growth of information has produced a profound change in the once staid library profession. Library automation in schools in Australia, with the exception of a few pioneer schools, dates from the introduction of the personal computer in the early eighties. In 1982, I visited Victoria on a Schools Commission Travel Grant to investigate this new phenomenon in schools. I returned to my school with the first version of the original MicMarc (now MetaMarc) system purchased from its originator, Ewen Boord. Other teacher librarians were trialling other systems which began to appear as a result of the demands of newly graduated teacher librarians intent on providing improved access to information for their users. The role of these teacher librarians began to change dramatically. For the majority, the turning point came halfway through 1988 when OASIS Library, after extended trials, was first introduced. Over time most NSW government schools were provided with a copy of the initial version. Teacher librarians became the first members of the teaching profession to discover that if they wanted to continue in the position it was mandatory for them to be competent users of the computer. The immediate focus for all was to automate the collection. What a task! There were many complaints - about the extra workload - about OASIS Library - about the changing role and the myriad other changes that computerization had delivered. Anyone outside the profession had little understanding of the change that was happening so all that teacher librarians gained was a reputation for being 'whingers'. This lack of understanding is clearly demonstrated by the easy acceptance by administrators and teachers of the disastrous 1988 decision, still not rectified, of the then NSW Minister for Education, Terry Metherill, that primary school teacher librarians act as RFF (Relief from Face-to-Face) for the other teachers in their schools. For such a decision to be made, there had to be a complete lack of understanding of the changing role of teacher librarians and the changing place of the library in the curriculum.

Because of their isolation in schools, teacher librarians tend to have strong networks within the profession but all too often this means problems and solutions are only discussed within the network. Evidence of change and progress must be widely disseminated if attitudes are to change. One means is to provide irrefutable, empirical evidence. I have always found such evidence to be of great assistance. I have always kept records, even before automation. If I could show that library usage had increased or that the average cost of a book had risen by twenty percent or that Science resources were diminishing as a percentage of total resources, I was usually able to get extra funding and support for my solutions. Passing an opinion to a principal was never as effective for me as a set of well prepared statistics in a report that backed my opinion with fact. I counted, averaged, calculated, totalled, cumulated everything, from the average cost of a fiction title to the number of girls and boys who actually visited the library on a specific day, and with this evidence, was most often successful with requests.

The statistics and information available to the teacher librarian could be of great value to the school. Collected statistics from a number of schools could be of greater value to an education system and such information collected nationally would be invaluable to the profession and to the nation. Surveys, questionnaires and other means of obtaining data which usually extrapolate from small samples, can be a useful means of obtaining data but they are time consuming to prepare, difficult to complete, and suspect to interpret because the small sample may not provide accurate enough information. The difference with database analysis is that there is access to the full OASIS Library data of a school, which, when combined with other schools, can paint a picture of reality to compare to individual schools and to the theoretical guidelines provided in the literature. When OASIS Library data is collected from a number of schools and aggregated, the resulting data can be used to show trends, ranges and predictions from which individual schools could make comparisons to establish their positions in relation to the total collected data. Such information collected and cumulated across a group of school libraries should assist teacher librarians, planners, administrators and others to make future decisions based on facts instead of conjecture and should help to show what a valuable asset a library is in a school as well as helping to change the perception of the role of the teacher librarian in the eyes of those outside the profession.

Automation can make the collection of statistics so much easier, but their collection must be simple and shown to have value. My main experience is with the ubiquitous OASIS Library and I do not believe that the collection of information in this database is simple. Much information is hidden or difficult and time consuming to extract. Through this chapter I hope firstly to show that a set of tools can be provided which will simplify the collection of data in a standardized manner which would allow its wider use. These same tools can be diagnostic tools to be used by individual teacher librarians to ensure they have a clean error free database which is a basic requirement if the system is to work effectively. Secondly, I hope to convince teacher librarians that the collection and cumulation of this data is an important and worthwhile task and not an extra burden in an already overloaded schedule.

THE OASIS LIBRARY DATABASE

I want to start by looking at the data schools have available through the OASIS Library database. My trial was conducted using aggregated data from eleven primary schools in the Diocese of Broken Bay, where, at the time of writing, I was the Technology Resource Adviser and Training Coordinator. The schools were selected to provide a variety so that country and city, small and large schools were included. In the analysis of this data, there are three distinct areas to examine:

- physical structure
- circulation analysis
- database content

Across the broad spectrum of school libraries, even across those who use OASIS Library, there are many differences. If data from a range of sources is to be aggregated then certain standards must be maintained if the integrity of the data is not to be compromised. I want to provide an example of the methods I used to complete the trial and to show the worthwhile information that can be obtained from such an exercise.

DATA COLLECTION

- **A backup of the library data from selected schools was collected**

Teacher librarians in our Diocese met regularly for OASIS Library training in one of our Technology Centres. A method had been designed by my colleague, Bill Hartley, whereby teacher librarians could bring the data from their libraries, usually on a single disk, to be restored on the computers at the Centre and used for training. There are many advantages in using this method especially the advantage of using real data. It also means that I had easy access to the data to enable me to complete this project.

- **Confidentiality and security were guaranteed**

Confidentiality and security of data was an important consideration, so before embarking on this research I asked for permission to use the data. No school will be identified in the results because the overall pattern from the combined data was the desired target. From the results, I was able to provide each teacher librarian with the analysis of his or her own school but no one else has had access to the information extracted from a single school database.

- **Data was collected from all selected schools within the same time period**

To make the data valid, I attempted to obtain the data over a limited period. It would have been preferable to collect it all on one day but that was an impossible task. It was collected between September, 1995 and March, 1996.

DATA CHECKING

- **The data to be collected was determined through discussion with colleagues and from the available literature and standards**

As reported earlier, some of this data is available quickly and easily through the use of existing reports. Even without the new Sample Reports in OASIS Version 2.0, there are innumerable reports which can be extracted from the database. Catalogue reports, stocktake reports, data validation reports, circulation reports of various types are all immediately available, although some do take a time to print. It was my task in consultation with a number of experienced colleagues to determine which of these reports were appropriate for this project and what vital information that was not immediately available, should also be considered. Reports were devised by Bill to extract the relevant data that was not immediately available and a pattern of collection determined to collect the data from the disks I had in my possession.

The form of presentation was determined to allow valid comparisons between schools of varying sizes. In most cases it was felt the use of percentages was appropriate. Finally, it was decided to use a spreadsheet format and graphs to show the final outcome. The whole procedure followed the pattern provided by the six steps in the Information Process.

- **Each school's data was examined to remove blanks, correct errors and checked to see if the data for this project was available**

To ensure accuracy, the data for each school was loaded on to the computer and checked through a set of pre-defined steps designed to remove inappropriate blanks, to correct any obvious errors that could inadvertently alter the result and to determine which management choices had been made in a range of files so that the next step, data standardization could be carried out. Examples of likely errors that could be found were items that had both a fiction location and a Dewey classification.

DATA STANDARDIZATION

- **The selected schools' data was then standardized to allow for valid comparisons**

Despite the fact that all the schools in this research use OASIS Library, each one is different. Obviously the collections have different resources but the significant differences between them were the resource management decisions made by individual teacher librarians. To make valid comparisons, some form of standardization was required. All schools where extra GMDs had been added were adjusted to the list provided in the manual. So BB for Big Book was changed to TE for Text and CD for Compact Disc was changed to SO for Sound Recording. Any item which was designated as Fiction was changed to F in the classification field so that all J's, JF's, SF's, PB's were replaced; the eventual aim being to allow comparison and compilation of the data without altering it.

- **Programs were written to extract the required data**

Existing reports were utilized and new ones written by Bill, to provide information about locations, GMDs, loans, the collection and physical characteristics. The completed reports were each given a standard name that could be used with each school database to allow for aggregation.

- **Loan categories were equated through all collections**

Loan categories were analyzed to determine which part of each collection was able to be borrowed directly only by teachers and which part of each collection was not for loan.

DATA AGGREGATION

- **After data was checked and standardized it was saved to disk**

Each set of data collected from the standardized databases has been saved separately to disk so that the relevant information could be extracted.

- **Data from each disk was added to a total database so that an overall view of database content was available**

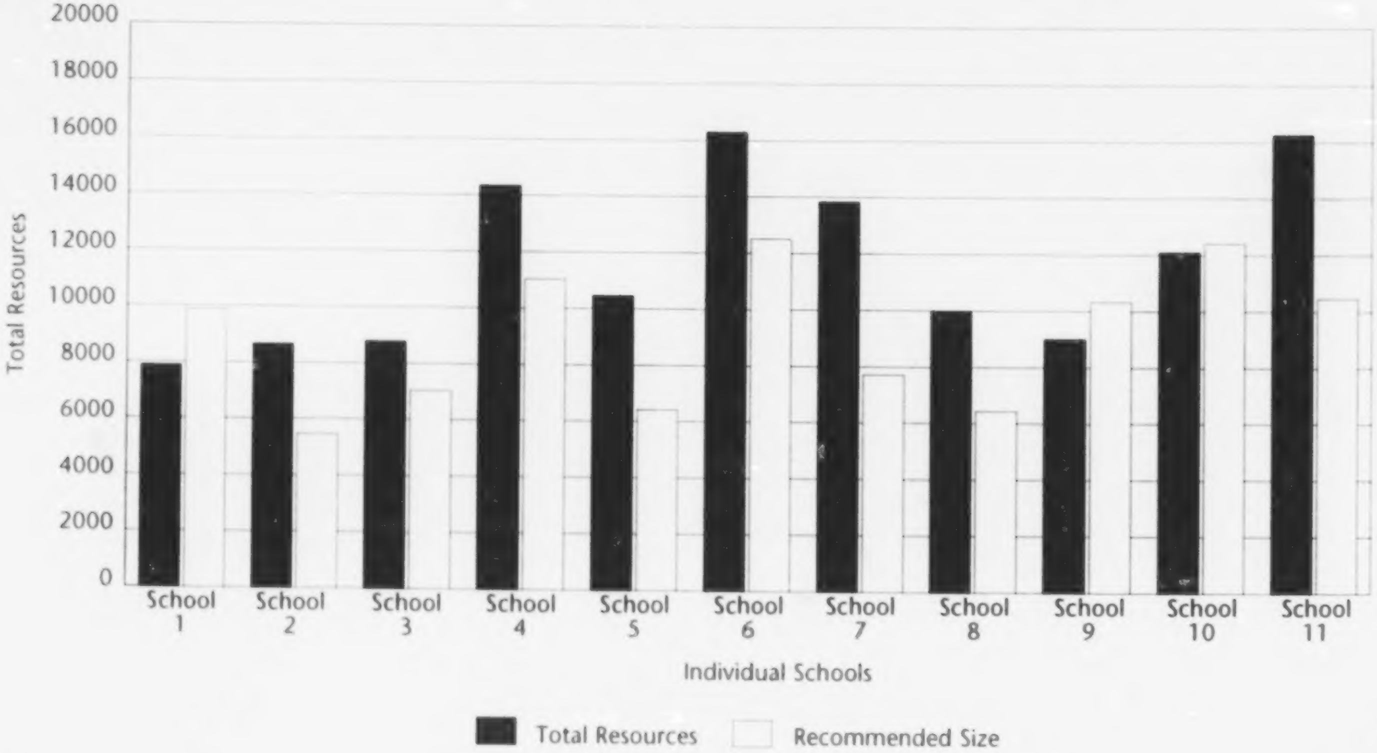
Once all data was saved it was added to a combined database and analyzed in the same manner with the same reports to provide a collective picture of the nature of the OASIS Library database in this Diocese. A similar data collection could be carried out annually to determine the changes and trends on a regular basis. Collecting data from a much wider range of schools over a specific time would further add to our knowledge and the capacity to evaluate our own databases.

DATA ANALYSIS

Physical Structure

Collection Size: In Learning for the Future, a table showing recommended school library collection size for a range of different sized schools is provided. [1] It is based on 'Items per student'. None of the schools in this study matched the recommended level. Figure 1 provides comparisons of each school with the recommended collection size stated in the guidelines. Recommended collection sizes are based on school enrolment figures.

Figure 1: Collection size for each school compared to recommendations from 'Learning for the future'



Composition of Collection: A computerized library catalogue/database allows for the composition of the collection to be easily analyzed. One of the traditional ways of examining composition is to look at the traditional divisions such as 'Fiction' and 'Non Fiction' and 'Teacher Only' resources in relation to the collection and composition by physical attributes (GMD). An analysis of the 'Non Fiction Classes' could also provide valuable input as would an evaluation of the age of the collection.

Fiction Versus Non Fiction: Although there are no recommended proportions of Fiction and Non Fiction in *Learning for the Future* or even in *Books and Beyond*, [2] the proportion I have always used as a benchmark since I began my school library career in 1963, has been: 66.6 per cent Non Fiction to 33.3 per cent Fiction. This proportion did not match with any school I analyzed. Overall the proportion was: 54 per cent Non Fiction to 46 per cent Fiction although the schools at either end of the range showed a marked difference ranging from 43 per cent Non Fiction to 57 per cent Fiction to 63 per cent Non Fiction to 37 per cent Fiction. All less than the proportion I expected.

Physical Attributes of Resources: Most teacher librarians would be able to quickly and easily extract this information from OASIS Library. In Version 2.0, in the Sample Reports, three reports are available to provide this information, although they do take some time to run. Library 31 and 32 show the number of items under each GMD designation. One searches and counts all GMDs while the other counts only the GMDs found in the database. Library 33 provides the Resource statistics for a selected GMD. Other Sample Reports also show resource usage with GMDs in various ways. Results showed the libraries within my sample are still very much print based. Overall 97 per cent of resources contained TE for Text. No library in my sample used the Periodical module, although a minority had issues of one or two periodicals in General Resources. *Learning for the Future* states that '...the ratio of print and non-print items in each collection is determined by individual schools to meet their particular needs. It is expected that all collections will include a variety of print and non-print media.' [3]

Non Text GMDs: An examination of the non text GMDs provides data of interest. They can be divided into four groups, although in the case of Kits there could be argument. I have chosen:

- audio-visual resources (chart, filmstrip, kit, motion picture, picture, slide, sound recording, transparency and video recording)
- electronic resources (computer software)
- physical objects (art original, diorama, flashcard, game, globe, map, manuscript, model, music, realia, technical drawing)
- micro resources (microform, microscope slide)

Electronic resources remain a minuscule proportion. Over 81 per cent of the non text resources are audio-visual resources, 14 per cent are physical and only six per cent are electronic. There were no micro resources catalogued in this sample.

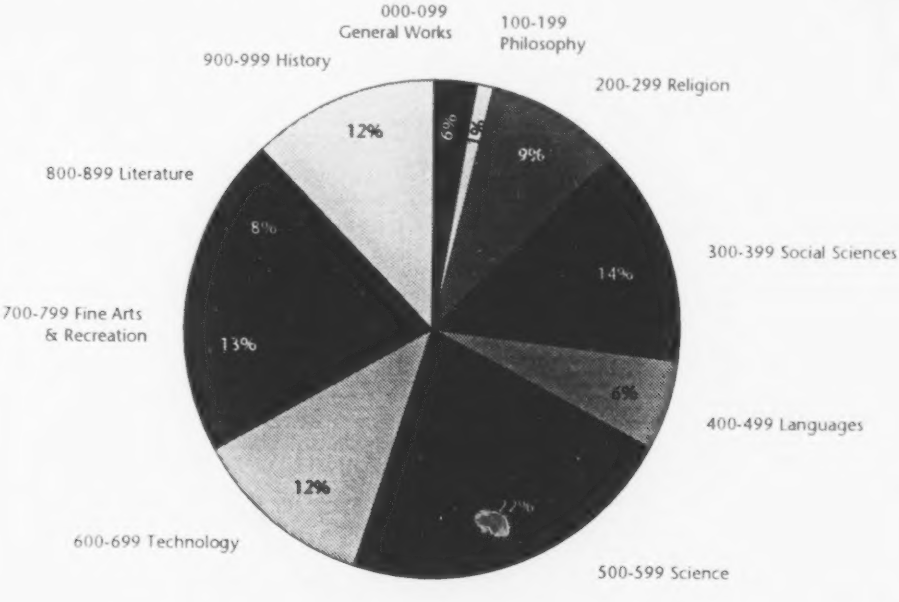
Division by Loan Category: Collections can be divided in other ways as well. What proportion of the collection should be for reference only? What proportion should be available for direct staff use only?

My findings indicate that less than one per cent of resources are 'not for loan' and fifteen per cent is set aside for use by teachers only. Both figures varied widely in the ranges. The percentage of resources set aside for each of these categories was determined using the Loan Categories decided by each teacher librarian. Some schools provided access to all resources for all users, and some were more restrictive. A number of teacher librarians still appear to be confused by the use of Loan Categories.

Division of Non Fiction: An analysis of the Dewey Classes for each school provides a range of interesting data. The division showed that almost a quarter of the collection is classified in the Science Class (500 to 599 equalled 23 per cent). Social Sciences, Fine Arts and Recreation, History and Technology were all about the same proportion and all above 10 per cent while the remaining Classes, as you would expect were much lower. The largest proportion of these remaining categories was the Religion Class with nine per cent but this would not necessarily be a universal finding as all the schools in this sample were Catholic.

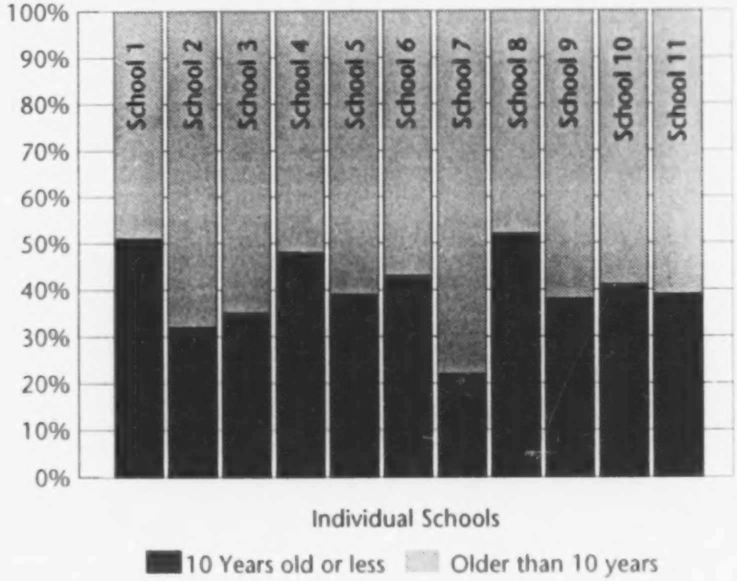
From the programs that were written it was possible to extract the proportion of any Dewey number that was used or a range of Dewey numbers.

Figure 2: Dewey classes as a percentage of total non-fiction: aggregated data



Division by Age: In *Learning for the Future,* the age of a collection is regarded as an important factor. A dynamic collection must be the aim and in many subject areas resources which are older than ten years are not suitable. In quickly changing subjects resources only a few months old may no longer be useful (e.g. books on the Internet). The research here shows that the collections are not within the required guidelines. Overall the percentage of resources older than ten years is 64 per cent.

Figure 3: Age of collection for each school; percentage of resources ten years old or less and percentage of resources more than ten years old

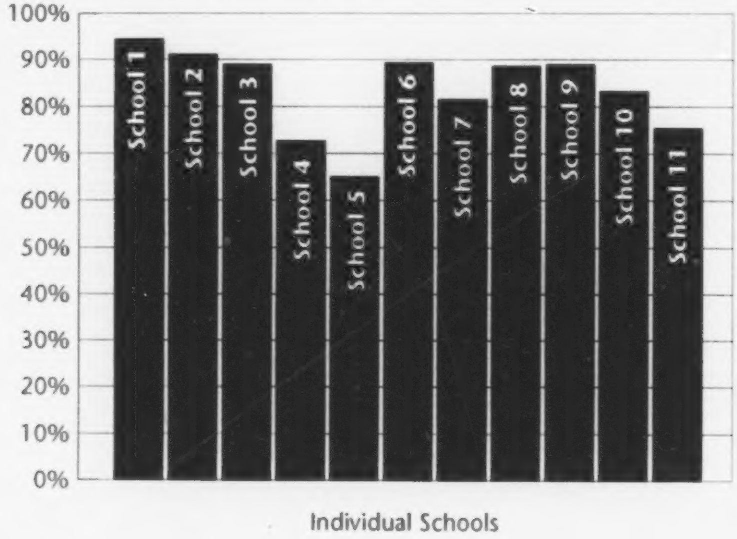


When specific, quickly changing subject areas are examined the situation is even worse. The proportion of resources on Astronomy older that ten years, for example, is 72 per cent.

Learning for the Future does make specific recommendations in this area. Monitoring should ensure '...an up-to-date collection with an average age of 10 years....The rate of change of knowledge in a specific area will determine the rate at which a resource becomes obsolete. [4]

Division by Copies: In many cases it is necessary for schools to hold numerous copies of some items to satisfy user demand. Teacher librarians need to make a resource management decision about which titles should be duplicated. The proportion of the collection that belonged to this category was minimal (five per cent), although the difference between individual schools was marked.

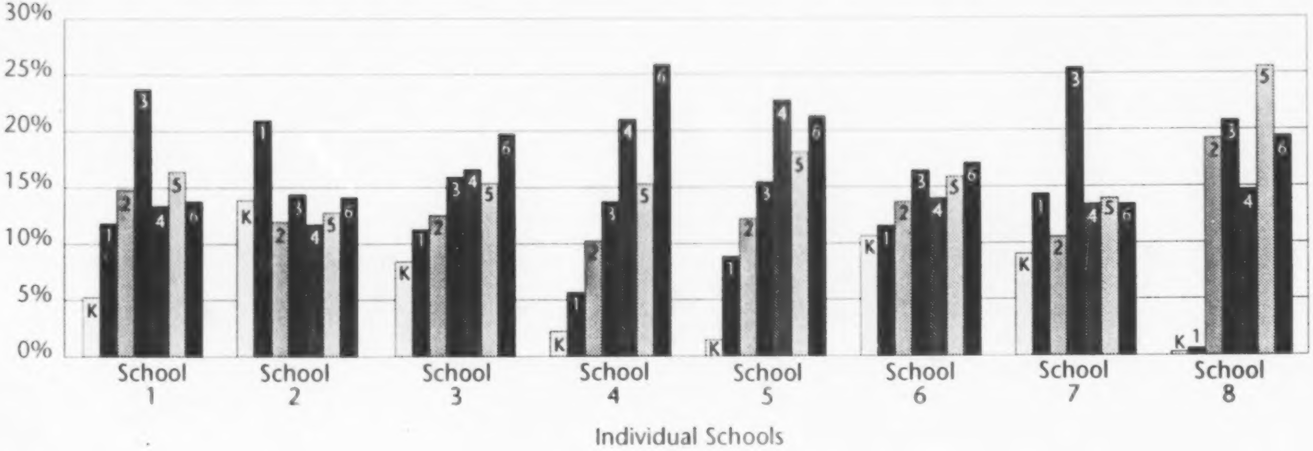
Figure 4: Non-duplicate titles as a percentage of total resources



CIRCULATION STATISTICS

The Collection: The direct comparison of circulation statistics between schools is not a valid option. Borrowing statistics cannot even be equated to reading or improved literacy as students who borrow resources do not necessarily read them. However, circulation statistics can provide some useful information. It is difficult to find a standard by which to judge whether or not a school library is effective in this area. One way which could be used to compare loan activity would be to calculate the number of loans compared to the number of users over a set period. For 1995, in the sample schools, the average number of loans per user was 19.6. This equates to one book per fortnight. This means a child, if he or she reads all books borrowed, reads only 140 books during Primary School and another 120 in Secondary - a total of 260 from the school library. Of course children have other sources from which to obtain books but this low figure is a disturbing one to me. What are these resources? Are they fiction or non fiction? Is it quality reading or the reading equivalent of 'junk' food? Circulation figures can be skewed too, by management decisions by teacher librarians such as the insistence in some cases that everyone must borrow a book when they visit the library!

Figure 5: Percentage individual grade loans (K–6) for each school



Favourite Book: OASIS Library keeps track of all loans and records which items have been borrowed the most. The report it presents in Resource Usage Report lists all items beginning with those never borrowed through to most borrowed. It takes a long time to produce as well. The report I use reverses the order and produces most borrowed items as well as providing the option of choosing Fiction or Non Fiction. In many Australian states and territories, awards are presented annually for the children's choice as the most popular book. Borrowing statistics would seem to me to be a more valid way to determine the most popular. For this research, I combined the lists of the top one hundred most borrowed resources from all the schools in the sample and determined the most popular twenty five by running the report again.

Table 1: Twenty-five most borrowed resources: aggregated data

Title	Author	Loans
Escape from blood castle	Tyler, Jenny	417
Matilda	Dahl, Roald	342
Where's Wally? 3 : the fantastic journey	Handford, Martin	325
Unreal! : eight surprising stories	Jennings, Paul	318
Dear zoo	Campbell, Rod	284
George's marvellous medicine	Dahl, Roald	282
The paw thing	Jennings, Paul	265
The twits	Dahl, Roald	250
Uncanny! : even more surprising stories	Jennings, Paul	244
The magic finger	Dahl, Roald	242
The BFG	Dahl, Roald	239
The witches	Dahl, Roald	239
Animalia	Base, Graeme	237
The cabbage patch fib	Jennings, Paul	232
Round the twist	Jennings, Paul	226
Charlotte's web	White, E.B.	194
Unbelievable! : more surprising stories	Jennings, Paul	192
The first Easter bunny	Walker, Kate	187
The eleventh hour : a curious mystery	Base, Graeme	179
Search for the sunken city	Oliver, Martin	171
Unbearable! : more bizarre stories	Jennings, Paul	157
Twenty mini mysteries	Anastasio, Dina	147
Karen's kittycat club	Martin, Ann M.	145
Garfield the great lover	Davis, Jim	144
Boy : tales of childhood	Dahl, Roald	143
The enormous crocodile	Dahl, Roald	143

Items Never Borrowed: A list of the items never borrowed is a useful tool to help a teacher librarian decide whether or not an item should be weeded from the collection. This is only an appropriate tool if the borrowing procedures are being correctly used and items not for loan, items which are 'linked', and reference items are taken into account.

Sex Differences in Circulation: Who borrows most - girls or boys? OASIS Library can tell you for your school. For the sample schools it was found that boys did borrow less than girls overall but not in every school in the sample and not by as much as I expected. I had this data from only eight of the schools. The figures indicate that boys' loans exceeded girls' in only one school but boys exceeded girls in the school population by 10 per cent at this school as well. When the two factors were considered, it was shown that girls borrowed more than boys in every case although the difference was small.

Age Differences in Circulation: By looking at the differences in circulation statistics between classes it is possible to see whether younger or older children borrow more from the school library. Data can be influenced greatly by the management decisions made by the teacher librarian. On the basis of figures provided by this research it was found that on average older children borrowed more but the results were inconclusive because of the differences that exist between the schools' data. A regular check on this data in individual schools would allow a teacher librarian to decide if a reading program or specific promotion had influenced borrowing statistics in a chosen class.

Differences in Non Fiction Circulation: From the figures collected in this research, the most popular section of the non fiction section of the library is the recreation section containing sports, magic, theatre and so on. The next most popular section was dinosaurs, followed by animals and pets. These figures need to be examined closely before conclusions can be drawn. The other variable that needs to be considered is the number of resources available. Is the recreation section most popular because it has the most resources? A teacher librarian could use the data to decide if more resources were needed in a specific subject area.

Newness as a Determinant in Circulation: It was also possible to judge whether the age of a resource affected borrowing patterns. In this sample, it was found overall that 75 per cent of titles borrowed were less than two years old.

Quality as a Determinant: One of the aspects that was most interesting was the collection content discussed in the next section. From this part of the analysis it was also possible to determine across the sample, whether or not 'quality' books such as the classics and award winners were borrowed by the students. Results showed that in the main this was not the case, although the influence of movies and television was obvious.

COLLECTION CONTENT

The ability to quickly determine whether a database contains a specific group of resources would be a useful addition to a group of diagnostic files available to a teacher librarian. For this part of the research Bill devised a program which allowed me to compare any list I prepared, to each OASIS Library database. The program would allow a teacher librarian to decide easily whether or not specific resources should be purchased. The lists provided here show the total number of copies held by schools in this sample and whether or not they have been borrowed. Some titles will not be found in more recently established libraries because of changing attitudes and because in many cases the books are no longer in print, but nevertheless the tables provide some interesting reading.

Classics: The Classics list is a list of generally recognized books for children, published before 1910.

Table 2: Most borrowed 'classics': aggregated data

Title	Copies	Loans
Treasure island	39	205
Little women	30	189
The Wizard of Oz	29	178
Black Beauty	33	169
The tale of Peter Rabbit	23	160
The secret garden	24	158
Peter Pan	19	149
Alice in Wonderland	30	130
Anne of Green Gables	18	115
Heidi	40	111
A Christmas carol	18	111
The wind in the willows	46	92
Oliver Twist	10	68
The jungle book	21	65
The water babies	6	56
Around the world in eighty days	17	55
20,000 leagues under the sea	8	43
Aesop's fables	16	41
Robinson Crusoe	9	32
The adventures of Tom Sawyer	17	25
The adventures of Pinocchio	11	19
Gulliver's travels	8	19
Swiss Family Robinson	2	14
What Katy did	8	10
The coral island	1	6
The story of the treasure seekers	1	0
Just-so stories	0	0
Call of the wild	0	0
Tom Brown's school days	0	0
Pilgrim's progress	0	0
War of the worlds	0	0
The legend of Sleepy Hollow	0	0

Table 3: Most copies of 'classics' held: aggregated data

Title	Copies	Loans
The wind in the willows	46	92
Heidi	40	111
Treasure island	39	205
Black Beauty	33	169
Little women	30	189
Alice in Wonderland	30	130
The Wizard of Oz	29	178
The secret garden	24	158
The tale of Peter Rabbit	23	160
The jungle book	21	65
Peter Pan	19	149
Anne of Green Gables	18	115
A Christmas carol	18	111
Around the world in eighty days	17	55
The adventures of Tom Sawyer	17	25
Aesop's fables	16	41
The adventures of Pinocchio	11	19
Oliver Twist	10	68
Robinson Crusoe	9	32
20,000 leagues under the sea	8	43
Gulliver's travels	8	19
What Katy did	8	10
The water babies	6	56
Swiss Family Robinson	2	14
The coral island	1	6
The story of the treasure seekers	1	0
Just-so stories	0	0
Call of the wild	0	0
Tom Brown's school days	0	0
Pilgrim's progress	0	0
War of the worlds	0	0
The legend of Sleepy Hollow	0	0

Award Winners: This is the complete list of books awarded the Book of the Year Award by the Children's Book Council of Australia. In more recent times Category winners are included.

Table 4: Most borrowed 'CBC Winners': aggregated data

Title	Author	Copies	Loans
Window	Baker	13	380
Finders keepers	Rodda	30	346
Thing	Klein	22	213
The eleventh hour	Base	12	208
Pigs might fly	Rodda	22	169
The rainbow serpent	Roughsey	21	153
John Brown, Rose and the Midnight Cat	Wagner	21	152
Greetings from Sandy Beach	Graham	9	143
Rowan of Rin	Rodda	17	112
So much to tell you	Marsden	8	111
The magnificent nose and other marvels	Fienberg	12	106
My place	Wheatley	68	105
Something special	Rodda	17	102
Bertie and the bear	Allen	14	94
The quinkins	Trezise	18	72
First light	Crew	13	72
Bernice knows best	Dann	14	66
Waltzing Matilda	Paterson	30	64
Ark in the park	Orr	9	61
Felix and Alexander	Denton	4	57
Pigs and honey	Adams	23	55
The bamboo flute	Disher	8	55
Beyond the labyrinth	Rubinstein	3	53
Crusher is coming	Graham	1	48
Kojuro and the bears	Morimoto	7	43
Came back to show you I could fly	Klein	6	43
One dragon's dream	Pavey	9	41
Foxspell	Rubinstein	8	33
All we know	French	8	32
The watertower	Crew	9	28
The green wind	Fowler	14	26
Sunshine	Ormerod	12	20
Master of the grove	Kelleher	5	20
A little fear	Wrightson	11	19
Rummage	Mattingley	9	18
Sly old wardrobe	Southall	5	17
The bunyip of Berkeley's Creek	Wagner	14	15
The plum-rain scroll	Manley	7	14
The man from Ironbark	Paterson	14	13
Arkwright	Steele	10	13
The best kept secret	Rodda	5	13
Australian legendary tales	Parker	2	10
The nargun and the stars	Wrightson	15	8
The October child	Spence	14	7
The ice is coming	Wrightson	9	7

Looking for Alibrandi	Marchetta	1	7
Ash Road	Southall	8	6
Longtime passing	Brinsmead	7	6
The true story of Lilli Stubeck	Aldridge	2	6
To the wild sky	Southall	5	5
The valley between	Thiele	5	5
Pastures of the blue crane	Brinsmead	6	4
The gathering	Carmody	2	4
Strange objects	Crew	1	4
Tangara	Chauncy	4	3
Del-Del	Kelleher	2	3
The crooked snake	Wrightson	2	2
When jays fly to Barbmo	Balderson	6	1
Bread and honey	Southall	6	1
Verity of Sydney Town	Williams	1	1
The Racketty Street gang	Evers	4	0
Family at the lookout	Shelley	2	0
Good luck to the rider	Phipson	1	0
Tiger in the bush	Chauncy	1	0
All the proud tribesmen	Tennant	1	0
The family conspiracy	Phipson	1	0
Fly west	Southall	1	0
Displaced person	Harding	1	0
Playing Beattie Bow	Park	1	0
Karrawingi, the emu	Rees	0	0
Shackleton's argonauts	Hurley	0	0
Whalers of the midnight sun	Villiers	0	0
The Australia book	Pownall	0	0
Aircraft of today & tomorrow	Martin	0	0
The first walkabout	Lindsay	0	0
Wish and the magic nut	Barnard	0	0
Boomerang book of legendary tales	Moodie-Heddle	0	0
Piccaninny walkabout	Poignant	0	0
Devil's Hill	Chauncy	0	0
Sea menace	Gunn	0	0
Rafferty rides a winner	Woodbery	0	0
The green laurel	Spence	0	0
Hugh's zoo	MacIntyre	0	0
The Min Min	Clark	0	0
Who sank the boat	Allen	0	0
Kojuro and the bears	Smith	0	0
The very best of friends	Vivas	0	0
Rose meets Mr Wintergarden	Graham	0	0
V for vanishing: an alphabet of endangered...	Mullins	0	0
New faces : the complete book of alternative...	Stewart	0	0

Table 5: Most copies of 'CBC Winners' held: aggregated data

Title	Author	Copies	Loans
My place	Wheatley	68	105
Waltzing Matilda	Paterson	30	64
Finders keepers	Rodda	30	346
Pigs and honey	Adams	23	55
Pigs might fly	Rodda	22	169
Thing	Klein	22	213
John Brown, Rose and the Midnight Cat	Wagner	21	152
The rainbow serpent	Roughsey	21	153
The quinkins	Trezise	18	72
Something special	Rodda	17	102
Rowan of Rin	Rodda	17	112
The nargun and the stars	Wrightson	15	8
The October child	Spence	14	7
The man from Ironbark	Paterson	14	13
The bunyip of Berkeley's Creek	Wagner	14	15
The green wind	Fowler	14	26
Bernice knows best	Dann	14	66
Bertie and the bear	Allen	14	94
First light	Crew	13	72
Window	Baker	13	380
Sunshine	Ormerod	12	20
The magnificent nose and other marvels	Fienberg	12	106
The eleventh hour	Base	12	208
A little fear	Wrightson	11	19
Arkwright	Steele	10	13
The ice is coming	Wrightson	9	7
Rummage	Mattingley	9	18
The watertower	Crew	9	28
One dragon's dream	Pavey	9	41
Ark in the park	Orr	9	61
Greetings from Sandy Beach	Graham	9	143
Ash Road	Southall	8	6
All we know	French	8	32
Foxspell	Rubinstein	8	33
The bamboo flute	Disher	8	55
So much to tell you	Marsden	8	111
Longtime passing	Brinsmead	7	6
The plum-rain scroll	Manley	7	14
Kojuro and the bears	Morimoto	7	43
When jays fly to Barbmo	Balderson	6	1
Bread and honey	Southall	6	1
Pastures of the blue crane	Brinsmead	6	4
Came back to show you I could fly	Klein	6	43
To the wild sky	Southall	5	5
The valley between	Thiele	5	5

The best kept secret	Rodda	5	13
Sly old wardrobe	Southall	5	17
Master of the grove	Kelleher	5	20
The Racketty Street gang	Evers	4	0
Tangara	Chauncy	4	3
Felix and Alexander	Denton	4	57
Beyond the labyrinth	Rubinstein	3	53
Family at the lookout	Shelley	2	0
The crooked snake	Wrightson	2	2
Del-Del	Kelleher	2	3
The gathering	Carmody	2	4
The true story of Lilli Stubeck	Aldridge	2	6
Australian legendary tales	Parker	2	10
Good luck to the rider	Phipson	1	0
Tiger in the bush	Chauncy	1	0
All the proud tribesmen	Tennant	1	0
The family conspiracy	Phipson	1	0
Fly west	Southall	1	0
Displaced person	Harding	1	0
Playing Beattie Bow	Park	1	0
Verity of Sydney Town	Williams	1	1
Strange objects	Crew	1	4
Looking for Alibrandi	Marchetta	1	7
Crusher is coming	Graham	1	48
Karrawingi, the emu	Rees	0	0
Shackleton's argonauts	Hurley	0	0
Whalers of the midnight sun	Villiers	0	0
The Australia book	Pownall	0	0
Aircraft of today & tomorrow	Martin	0	0
The first walkabout	Lindsay	0	0
Wish and the magic nut	Barnard	0	0
Boomerang book of legendary tales	Moodie-Heddle	0	0
Piccaninny walkabout	Poignant	0	0
Devil's Hill	Chauncy	0	0
Sea menace	Gunn	0	0
Rafferty rides a winner	Woodbery	0	0
The green laurel	Spence	0	0
Hugh's zoo	MacIntyre	0	0
The Min Min	Clark	0	0
Who sank the boat	Allen	0	0
Kojuro and the bears	Smith	0	0
The very best of friends	Vivas	0	0
Rose meets Mr Wintergarden	Graham	0	0
V for vanishing: an alphabet of endangered...	Mullins	0	0
New faces : the complete book of alternative...	Stewart	0	0

K to 6 English Recommendations: This list was prepared from the NSW English K-6 curriculum document. [5] Altogether, there are 521 'recommendations' in this publication. Of the 521, 208 titles (almost 40 per cent) do not exist in any of the sample schools' collections! Of the remaining 313 titles, only one copy is held of 51 (almost 10 per cent) of them in any of the sample libraries.

Table 6: Forty most borrowed 'K-6 English Recommendations': aggregated data

Title	Author	Copies	Loans
Charlotte's web	White	71	795
Matilda	Dahl	29	686
Animalia	Base	22	505
Window	Baker	13	380
The paw thing	Jennings	34	378
The BFG	Dahl	34	318
The cabbage patch fib	Jennings	34	311
Hating Alison Ashley	Klein	34	290
Possum magic	Fox	27	271
Where the forest meets the sea	Baker	16	222
Revolting rhymes	Dahl	7	220
Thing	Klein	22	213
Funnybones	Ahlberg	13	208
Flat Stanley	Brown	13	207
Penny Pollard's diary	Klein	25	203
Counting on Frank	Clement	9	200
Sebastian lives in a hat	Catterwell	17	196
A nice walk in the jungle	Bodsworth	14	178
Melissa's ghost	Dugan	14	172
The web	Hilton	16	164
Halfway across the galaxy and turn left	Klein	17	155
Grandma Cadbury's trucking tales	Bates	13	154
Edward the emu	Knowles	14	152
Nobody's granny	Brady	7	143
There's a sea in my bedroom	Wild	11	141
Onion tears	Kidd	23	140
Drac and the gremlin	Baillie	13	140
Thunderwith	Hathorn	40	134
Where's mum?	Gleeson	10	134
Grandad's gifts	Jennings	10	131
The very hungry caterpillar	Carle	13	129
When the wind changed	Park	8	123
Ramona the pest	Cleary	14	113
Imagine	Lester	5	113
Rowan of Rin	Rodda	17	112
The last week in December	Dubosarsky	14	112
Enora and the black crane	Meeks	19	110
Change the locks	French	15	108
The magnificent nose and other marvels	Fienberg	12	106
My place	Wheatley	68	105

Table 7: Forty most held copies of 'K-6 English Recommendations': aggregated data

Title	Author	Copies	Loans
Charlotte's web	White	71	795
My place	Wheatley	68	105
Thunderwith	Hathorn	40	134
The paw thing	Jennings	34	378
The BFG	Dahl	34	318
The cabbage patch fib	Jennings	34	311
Hating Alison Ashley	Klein	34	290
Pheasant and kingfisher	Berndt	32	56
Little brother	Baillie	31	43
Matilda	Dahl	29	686
Possum magic	Fox	27	271
Penny Pollard's diary	Klein	25	203
Onion tears	Kidd	23	140
Melanie and the night animal	Rubinstein	23	67
Digging to China	Rawlins	23	65
Pigs and honey	Adams	23	55
Bottersnikes and Gumbles	Wakefield	23	37
Animalia	Base	22	505
Thing	Klein	22	213
Chickens	Snowball	22	8
An introduction to insects	Bird	21	20
Sadako and the thousand paper cranes	Coerr	20	65
An introduction to Australian spiders	Cullen	20	25
Enora and the black crane	Meeks	19	110
Storm boy	Thiele	19	35
The quinkins	Trezise	18	72
Keeping small animals	Anderson	18	48
Sebastian lives in a hat	Catterwell	17	196
Halfway across the galaxy and turn left	Klein	17	155
Rowan of Rin	Rodda	17	112
Where the wild things are	Sendak	17	82
Blue fin	Thiele	17	30
Where the forest meets the sea	Baker	16	222
The web	Hilton	16	164
The super-roo of Mungalongaloo	White	16	34
Change the locks	French	15	108
Each peach pear plum	Ahlberg	15	88
Five times dizzy	Wheatley	15	54
A giant's cake and other poems	Hanzl	15	12
The nargun and the stars	Wrightson	15	8

New Classics: This was a subjective list I prepared to show how easily this report can be used. Any recommended list from any Key Learning Area (KLA) or other reputable source could be used.

Table 8: Most borrowed 'New Classics': aggregated data

Title	Author	Copies	Loans
Animalia	Base	22	505
Hating Alison Ashley	Klein	34	290
Possum magic	Fox	27	271
The complete adventures of Snugglepot...	Gibbs	28	238
Where the forest meets the sea	Baker	16	222
Penny Pollard's diary	Klein	25	203
Pigs might fly	Rodda	22	169
Drac and the gremlin	Baillie	13	140
So much to tell you	Marsden	8	111
Space demons	Rubenstein	18	76
The lighthouse keeper's lunch	Armitage	13	71
Seven little Australians	Turner	27	69
Dot and the kangaroo	Pedley	5	58
Five times dizzy	Wheatley	15	54
Crusher is coming	Graham	1	48
The complete adventures of Blinky Bill	Wall	9	46
Little brother	Baillie	31	43
One dragon's dream	Pavey	9	41
The silver brumby	Mitchell	5	40
Bottersnikes and Gumbles	Wakefield	23	37
Storm boy	Thiele	19	35
Sister Madge's book of nuns	MacLeod	8	35
All we know	French	8	32
The little black princess	Gunn	2	26
I can jump puddles	Marshall	7	22
My Hiroshima	Morimoto	6	21
Climb a lonely hill	Norman	13	20
Master of the grove	Kelleher	5	20
Wilfred Gordon McDonald Partridge	Fox	5	15
A book for kids	Dennis	4	15
The magic pudding	Lindsay	9	13
Midnite	Stowe	8	13
The cats	Phipson	6	11
The nargun and the stars	Wrightson	15	8
The October child	Spence	14	7
We of the never-never	Gunn	2	7
I own the racecourse	Wrightson	7	6
A little bush maid	Bruce	1	4
The way of the whirlwind	Durack	2	2
McKenzie's boots	Noonan	1	1
Come home, brumby	Patchett	1	0
Man-shy	Davison	0	0
On our selection	Rudd	0	0
Walkabout	Palmer	0	0
Let the balloon go	Southall	0	0

Table 9: Most copies of 'New Classics' held: aggregated data

Title	Author	Copies	Loans
Hating Alison Ashley	Klein	34	290
Little brother	Baillie	31	43
The complete adventures of Snugglepot...	Gibbs	28	238
Possum magic	Fox	27	271
Seven little Australians	Turner	27	69
Penny Pollard's diary	Klein	25	203
Bottersnikes and Gumbles	Wakefield	23	37
Animalia	Base	22	505
Pigs might fly	Rodda	22	169
Storm boy	Thiele	19	35
Space demons	Rubenstein	18	76
Where the forest meets the sea	Baker	16	222
Five times dizzy	Wheatley	15	54
The nargun and the stars	Wrightson	15	8
The October child	Spence	14	7
Drac and the gremlin	Baillie	13	140
The lighthouse keeper's lunch	Armitage	13	71
Climb a lonely hill	Norman	13	20
The complete adventures of Blinky Bill	Wall	9	46
One dragon's dream	Pavey	9	41
The magic pudding	Lindsay	9	13
So much to tell you	Marsden	8	111
Sister Madge's book of nuns	MacLeod	8	35
All we know	French	8	32
Midnite	Stowe	8	13
I can jump puddles	Marshall	7	22
I own the racecourse	Wrightson	7	6
My Hiroshima	Morimoto	6	21
The cats	Phipson	6	11
Dot and the kangaroo	Pedley	5	58
The silver brumby	Mitchell	5	40
Master of the grove	Kelleher	5	20
Wilfred Gordon McDonald Partridge	Fox	5	15
A book for kids	Dennis	4	15
The little black princess	Gunn	2	26
We of the never-never	Gunn	2	7
The way of the whirlwind	Durack	2	2
Crusher is coming	Graham	1	48
A little bush maid	Bruce	1	4
McKenzie's boots	Noonan	1	1
Come home, brumby	Patchett	1	0
Man-shy	Davison	0	0
On our selection	Rudd	0	0
Walkabout	Palmer	0	0
Let the balloon go	Southall	0	0

This report will give you some idea of the valuable but hidden information that is available to the profession right now. I am only at the beginning and would like to continue this research. Other interesting data that was obtained included the monetary value of each collection. In many cases the actual cost of individual resources had not been entered. By using the data that was available and by estimating the value of each item that had not been entered as $10, the total value of the resources in the eleven schools was calculated at $1, 270, 749.86. The total number of resources in these schools was 119,794.

In my role as an OASIS Library Adviser, I have provided support for teacher librarians not only in the Diocese of Broken Bay but across a range of schools in all educational systems in NSW. I believe most problems that occur with OASIS Library, result from errors and blanks of which the teacher librarian is unaware. They only realize there is a problem when things begin to go wrong. It is rare for me to find an error free database. I believe teacher librarians should be provided with diagnostic tools to regularly check the data so that errors and blanks can be eliminated before trouble results. I do not believe teacher librarians should become technicians but I do believe they should not have to rely on others to ensure their major tool, the OASIS Library Database, is functioning effectively.

Although there are many standard reports in OASIS Library from which statistical data can be obtained, there seems to be a need for further tools to enable teacher librarians to regularly check their databases for inaccuracies and errors and to have the capability to correct them. OASIS Library Version 2.0 offered further Sample Reports and there is the opportunity provided to design your own reports but simple, fast and accurate reports that allow for checking and solving problems is essential. From our research a set of Diagnostic Reports has been developed which allow teacher librarians to complete this task. These Diagnostic Reports allow a teacher librarian to check quickly the total number of resources, including the status, loan category, GMD, location, age and classification of all items, and user totals. It also allows teacher librarians to determine the loan information of all items. Popularity, gender differences and lack of usage can also be easily provided. Using these new tools, teacher librarians should now be able to maintain a quality, current and appropriate OASIS Library database for their schools.

The second option outlined in this article and provided by these Diagnostic files is the opportunity to make use of the data within individual databases to provide trends across systems and to provide statistical data to measure whether or not standards are being met. If an acceptable method, such as the one offered here, were widely accepted, the collection of data for such a purpose would be a simple matter. Accuracy would also be assured because teacher librarians would be able to constantly monitor OASIS Library to ensure theirs was a clean, error free database.

REFERENCES

[1] *Learning for the Future: Developing Information Services in Australian Schools* (Carlton, Vic.: Curriculum Corporation, 1993), p. 23.

[2] *Books and Beyond: Guidelines for Library Resource Facilities and Services* 2nd ed. (Canberra: Schools Commission, 1980).

[3] *Learning for the Future, op. cit.*, p. 22.

[4] *Ibid.*, p. 21.

[5] This list was prepared from: NSW Board of Studies, *English K-6 Recommended Children's Texts* (North Sydney: The Board, 1995).

FOR FURTHER INFORMATION

Anyone interested in contacting John about this research can contact him at:

The Muldoon Information and Resource Centre
Gavenlock Road
Tuggerah NSW 2269
Tel: (043) 531661

Providing Access to Fiction in School Libraries: A Time for Change

Ashley Freeman

INTRODUCTION

Fiction is being increasingly used within schools for teaching and learning as well as for recreation and pleasure. As a consequence teacher librarians are finding themselves having to respond to requests such as:

> *Sarah brought in a fascinating pop-up book this morning which has really got the other kids interested. There is some great discussion and writing happening as a result. Can you give me 10 to 15 pop-up books to keep it going? I need them straight away.*
>
> *What's a good science fiction book that I'd like, Miss?*
>
> *I need some good picture books that deal with death and dying in a gentle and compassionate manner that would be suitable for the kids in my class.*
>
> *Yer got any more stories like this one, Miss?*
>
> *Do we have any novels which deal with the issue of logging old growth forests?*
>
> *Got any good comic books with Sherlock Holmes in them, Miss?*
>
> *Do we have any collections of Australian short stories which have won literary awards in recent years?*

Such diversified use of fiction is a development that we as teacher librarians applaud. However, it brings with it a growing need for extensive access to fiction through the catalogue. The traditional access points of author, title, series and non fiction style subject headings are no longer adequate. As can be seen from the above examples, there is also a need for ready access to fiction via a variety of additional access points such as genre, format and reading level. The traditional card catalogue lacks the necessary flexibility to readily provide such a range of access points. With the widespread use of increasingly powerful OPACs in schools, however, such access is now far more feasible and achievable.

Providing such access is frequently seen as a major challenge by teacher librarians, even with OPACs. We have tended to hesitate and to look to alternatives such as: changing the physical arrangement of the fiction collection; using commercially produced indexes and bibliographies, such as Kerry White's *Australian Children's Fiction : The Subject Guide* and Agnes Nieuwenhuizen's *More Good Books for Teenagers* [1]; creating displays on various topics and themes; and searching for useful sites on the Internet. While these alternate methods have value, all too frequently the access they provide could be more thoroughly and fully developed and maintained through the OPAC.

If we are to more adequately fulfil our role as providers of access to needed information we cannot afford to neglect this challenge. The catalogue should be the 'key' to the collection, the primary access point to the library's resources. The value of the fiction collection, however marvellous and extensive it may be, is greatly diminished if teachers and students (and indeed the teacher librarian) experience difficulty and frustration in trying to locate the fiction they need. If we fail to meet this challenge we are not only neglecting one of our responsibilities, we are creating an additional burden for ourselves. Our users will quickly and persistently turn to and demand answers from the alternative font of information within the library - the teacher librarian.

By now many of you will be asking if providing such access is really the task of teacher librarians? Isn't the provision of catalogue records which meet the needs of Australian school libraries the role and task of the School Cataloguing Information Service (SCIS)? Why should already over burdened teacher librarians need to shoulder this additional responsibility when SCIS catalogue records have included subject headings for fiction works since 1986? If the access to fiction provided on SCIS records isn't meeting the needs of our users, isn't it preferable that SCIS find a remedy rather than for thousands of teacher librarians to each address the problem individually?

ACCESS TO FICTION PROVIDED BY SCIS

In order to answer such questions we first need to understand what access SCIS is currently providing to works of fiction. In addition to author (including illustrator), title and series access points SCIS also provides access through the following types of subject headings:

'Non fiction' based headings - works of fiction may be given headings according to the persons, places, themes or topics with which they deal'. [2] These subject headings are the most common and widely known type of subject access to fiction and are created by adding the standard subdivision '- Fiction' to accepted 'non fiction' subject headings, e.g.

Basketball - Fiction
Honesty - Fiction
Science - Experiments - Fiction
Cook, James - Fiction
Rocks (Sydney, N.S.W.) - Fiction
Mars (Planet) - Fiction

Fictitious characters and places, if they are widely known, can also be given as subject headings, e.g.
Holmes, Sherlock (Fictitious character)
Batman (Fictitious character)
Peter Pan (Fictitious character)

Language - if a fiction work is in a language other than English, it is given a subject heading which indicates the language in which it is written, e.g.
French language text
Japanese language text
Indonesian language text

Literary prizes - if a fiction work has won a literary prize it can be given the name of the prize as a subject heading, e.g.
Book of the Year Award
Miles Franklin Award
KOALA (Literary prize)

While the access provided through author, title and series accords closely with international standards set down in the *Anglo-American Cataloguing Rules* 2nd edn., 1988 revision; the provision of subject headings for works of fiction is governed by section 4D of *Curriculum Corporation Standards for Cataloguing and Data Entry* which is much more restrictive in the subject access it allows than other widely used tools such as the *Library of Congress Subject Headings* and *Sears List of Subject Headings* . [3]

It is SCIS policy to assign subject headings to fiction works when to do so:

> *Would meet a curriculum need by highlighting topics likely to be studied in Australian schools; (and/or) would give subject access to significant works of fiction.* [4]

The criteria set to determine if a work of fiction meets this category are:

> *the work refers to persons of significance in history, mythology or current affairs; the work has received such general recognition that its principal characters have become part of the body of general knowledge; the work describes with special vividness and verisimilitude an historical period or event of potential interest to students; the work portrays with special efficacy a geographical, social or cultural setting of potential interest to students; the work contains themes or topics of potential curriculum relevance, especially those relating to aspects of contemporary society; the work treats matters of Australian significance.* [5]

This policy is restrictive in that only certain works of fiction are to be assigned subject headings as against all information works, myths and legends, plays, collections of poetry, and so on. It is also subjective in that terms such as 'significance', 'general knowledge', 'special vividness and verisimilitude' and 'potential interest' are likely to be differently interpreted by individual cataloguers.

The purpose of assigning subject headings to works of fiction is defined by SCIS standards as:

> *...principally to draw attention to topics contained in those works. While in some instances subject entries for fiction in a catalogue, may serve to give access to fiction as literature, this is regarded as an incidental benefit subordinate to its fundamental purpose of providing significant topical information that is essentially unrelated to whether a work is fictional or otherwise.* [6]

Such a purpose can be seen as very much in conflict with the current extensive place of fiction in the curriculum. The need for access to fiction as literature is now much more than an 'incidental benefit'. A major consequence of this stated purpose is that 'the assigning of genre headings to works of fiction is not supported'. This despite a variety of other literary forms or genres being accredited SCIS subject headings, e.g. Allegories, Fables, Folklore, Horror films, Humorous poetry, Jokes, Limericks and Parables.

Other limitations placed on subject access to fiction include limiting the number of subject headings which can be assigned to a work of fiction to five (this limit also applies to other types of works), and directing cataloguers when assigning subject headings to fiction that '...the task should be promptly abandoned if the required information is not readily available or if any doubt arises about whether any heading should be assigned or what it might be.' [7]

In addition to restrictions placed on subject access, SCIS also limits the information which can be given in the notes area of catalogue records. In particular, giving a summary of the work and indicating who the work would be appropriate for is disallowed. [8] This limitation has direct implications for OPACs as there is considerable potential on many of the software packages used in schools to include extensive notes which can then be key worded to provide additional access points to the work. For example, a description of the plot and an indication of the reading level could provide valuable access to fiction if SCIS provided this information.

It would be reasonable to assume that these stated standards would clearly indicate the access that SCIS actually provides to fiction works. In the case of the access provided through descriptive cataloguing this assumption is correct. However, discussions held by this writer in mid 1995 with senior cataloguers from six SCIS cataloguing agencies about assigning subject headings to works of fiction lead to some interesting revelations.

When asked to estimate what percentage of fiction works catalogued by their agency were given subject headings the most common response was 'almost all' with one replying 'all' and only one lower response of 'about 50 per cent'. The stated criteria as to what is a significant work of fiction and the instruction to only give subject headings to these works was overwhelmingly disregarded. The very concept of a 'significant', or for that matter an 'insignificant', work of fiction was seen to be suspect. Consequently the approach actually taken by SCIS cataloguers was not what fiction works should be given subject headings, but rather which works should not be given subject headings. Works not given subject headings were reported as being those where there was no discernible subject or the appropriate subject heading or headings were disallowed or didn't exist.

'Theme' subject headings were given liberally and were in fact being assigned as *de facto* genre headings. Where the use of a genre heading was specifically disallowed, such as in the case of the headings 'Science fiction', 'Historical fiction' and 'Adventures and adventurers', the decision was followed. However, wherever possible genre-like subject headings such as 'Love - Fiction', 'Crime - Fiction', 'Ghosts - Fiction', 'Animals - Fiction' were freely given by each agency. Where the appropriate heading was disallowed cataloguers tended to search for a suitable alternative heading, though not always successfully. For example, one senior cataloguer expressed frustration at being unable to use, or find an acceptable alternative for, 'Horror', another was in a similar dilemma about 'Classics'.

Language headings were always given for fiction works in a foreign language, but there was considerable discussion about using literary prizes as subject headings. The common approach taken was to give literary prizes stated on the work itself as subject headings. However the value of these subject headings as access points was questioned, primarily because fiction works, particularly Australian works, are usually catalogued before they have received literary prizes and there is currently no retrospective cataloguing to include these prizes onto the catalogue records. Also the value of state and regional literary prizes on catalogue records was questioned.

The senior SCIS cataloguers also tended to be dubious about the value of fictional characters and places as subject headings and tended either not to give them or to be quite restrictive in their use. One agency for example tended to only give fictional characters and places when they appeared in works other than the original work. For example, the subject heading 'Sherlock Holmes (Fictitious character)' would only be used when this character appeared in a fiction work written by someone other than Sir Arthur Conan Doyle.

Because of the apparent disparities between SCIS standards and the practices of the SCIS agencies with regard to providing subject access to fiction, this writer examined one thousand recently created SCIS catalogue records for works of fiction to get an overview of the access that is being provided. The first sample of five hundred catalogue records was taken from the April 1995 update of the Full Cataloguing Microfiche ('1 2 3 with Hickory and me' to 'CLARK, Arthur C.') and the second batch of five hundred records was drawn from the June 1996 update (RABELAIS, Francois to THOENE, Jake).

In the first sample four hundred and forty of the fiction catalogue records (88 per cent) had subject headings while only sixty (12 per cent) did not. The consistent pattern throughout this sample was that less then ten percent of records did not have subject headings. The final results were skewed by the presence of twenty seven records for Enid Blyton reprints within this sample, only seven of which had subject headings. If these twenty seven records were excluded from the sample then the percentage of fiction records with subject headings rose to 91.5 per cent. In the second, more recent, sample

489 (98 per cent) of the 500 fiction records had subject headings. In this second sample a total of 912 subject headings were assigned, an average of just under two subject headings per record. Both these results confirm the comments of the SCIS cataloguers that SCIS standards are ignored in this regard. Indeed the results of the second sample suggest that the practice of assigning subject headings to all works of fiction is now almost universal amongst SCIS cataloguers.

The sixty records without subject headings within the first sample included a number of collected works which would have been difficult to give an overall subject heading or headings to; some works for whom the most likely subject heading would have been one of the disallowed broad genres such as Science fiction or Horror; or works which could be regarded as 'Classics'. The reasons for the 11 records in the second sample not having subject headings were not readily apparent. Indeed in five of these instances similar works by the same author were given subject headings!

While the majority of the subject headings assigned were topic headings, with headings for real places and people also well represented, e.g. Obesity - Fiction, Bikini Atoll - History - Fiction and Jack the Ripper - Fiction, there were also a large number of 'genre-like' theme headings in both samples. In the second sample, for example, about 100 of these headings were used. They included Love - Fiction (used 9 times), Murder - Fiction (15), Crime - Fiction (6), Detectives - Fiction (19), Supernatural - Fiction (21), Ghosts - Fiction (15), Family relations - Fiction (8) and Family - Fiction (3). This supports the senior cataloguers' comments that it had become a common practice to use theme subject headings to provide *de facto* genre access to fiction.

All fiction works in both samples which had foreign language titles had language subject headings. In the first sample there were nine different language subject headings given, the languages being Italian (four times), Spanish (twice), German (twice), Japanese (twice), Vietnamese, Hebrew, Chinese, Guugu Yimidhhirr and Indonesian. In the second sample six different language subject headings were given a total of 15 times - Indonesian language text (five times), French language text (four times), Italian language text (twice), Chinese language text (twice), German language text and Japanese language text. While only a very small percentage of the subject headings assigned to works of fiction, this finding supported the SCIS cataloguers' comments that the SCIS decision to give fiction works in another language, language subject headings was consistently followed.

The SCIS cataloguer's reservations about using literary prizes and fictitious characters and places as subject headings were reflected in the two samples. Literary prizes were rarely assigned as subject headings with only six of the 1000 works having literary prizes as subject headings. Fictitious characters and places were also very rarely assigned as subject headings. Only two fictitious names and no fictitious places were used; even though there were catalogue records for new versions of works such as *Return of the Jedi* and *Road to Avonlea* where character subject headings would have met the SCIS standards and provided useful access points.

Another type of subject heading found in the two samples was not mentioned in the SCIS standards relating to subject headings for fiction works or in the discussions with SCIS cataloguers. This was format headings, although only two format headings were used, 'Comics' and 'Short stories' with the latter generally beginning with the name of the country from which the short stories originated. In the second sample these two format subject headings were used 44 times. 'Comics' was used four times and 'Short stories' was used 40 times in four formats - Short stories (14), Australian short stories (8), English short stories (12) and American short stories (6).

These samples, together with the discussions with SCIS cataloguers, provide us with a much clearer, and somewhat different, picture of the subject access to works of fiction actually being provided on SCIS records than that presented by section 4D of the *Curriculum Corporation Standards for Cataloguing and Data Entry*. The positive side of this actual situation is that SCIS cataloguers have responded to a perceived need for more access to fiction by providing subject headings for almost all works of fiction and by striving to provide a form of genre access to fiction. The negatives begin with the fact that there are now few effective agreed upon standards in this area to guide cataloguers and to ensure consistency in practice across all SCIS agencies. For example, while genre access is in effect being provided there are no agreed upon genre headings or definitions of different genres. Hence the same type of novel might be described by different cataloguers as 'Crime - Fiction' or 'Murder - Fiction' or 'Detectives - Fiction'. This problem is compounded by cataloguers still following specific decisions which prevent them from providing access points to genres such as 'Science Fiction' and 'Horror'.

While the percentage of catalogue records for works of fiction with subject headings is high, the range of types of subject headings employed is limited. The headings used are predominantly those used for non fiction works namely topics, real places, real people and language. Theme/genre headings, plus some limited format access are the only real advances on this. Other access points allowed by SCIS, namely literary prizes and fictional characters and places appear to be rarely employed. Other potentially valuable access points such as reading level and summary are entirely absent. Additionally, guidelines for creating some types of subject headings allowed by SCIS for fiction works are inadequate. For example, on the infrequent occasions fictitious characters are assigned as subject headings there is confusion as to the form these subject headings should take. On the April 1996 subject authority microfiche the heading for the fictitious character 'Batman' is given in four different forms - 'Batman', 'Batman - Fiction', 'Batman (Fictitious character)' and 'Batman (Fictitious character) - Fiction'.

SCHEMES TO ENHANCE SCIS ACCESS TO FICTION

Not surprisingly there has been considerable dissatisfaction among teacher librarians about the access which SCIS provides to works of fiction. Several of the six senior SCIS cataloguers mentioned this dissatisfaction as a key influence behind the trend to include subject headings on most catalogue records for works of fiction and the widespread use of genre-like subject headings. Over time this dissatisfaction has lead to the creation of a number of schemes to enhance SCIS access to fiction within individual libraries and groups of libraries.

The largest of these schemes occurs in Western Australia where, since mid 1993, cataloguers working for the Education Department of Western Australia have been adding genre heading to the SCIS catalogue records of fiction works for use in WA government schools. These genre headings were determined by a survey of WA government teacher librarians and are as follows.

Adventure stories
Animal stories
Australian stories
Crime
Family sagas
Fantasy
Historical fiction
Horror
Humour
Mystery
Romance
Science fiction
Supernatural

These genre headings are included in the subject field of the catalogue record together with any SCIS subject headings assigned to the work. It is intended that a follow up survey be undertaken by Curriculum Materials Information Services (CMIS) of the Education Department of Western Australia to determine the acceptance and use of these genre subject headings.

Other schemes tend to operate within individual libraries. One such scheme operates in the Open Learning Curriculum Library of the Department of Education, Queensland, which provides resources for Departmental teachers. As in the case of the Western Australian scheme it is devised and run by SCIS cataloguers. In this scheme selected terms are added to the notes area of SCIS catalogue records of 'appropriate' works of fiction and key worded on the OASIS Library OPAC. Keywords used include:

Australian Adventure
Big Book
Comic book
Easy reader (for readers moving from picture books to novels)
Fantasy
Mystery
Reluctant readers
Science fiction
Without text
Abridged ed. (including retellings)
CDROM format
Diary format
Historical Fiction
Pop-up book
Read aloud
Thriller

These keywords are a mixture of genres, formats and reading levels and are intended to supplement the access provided by SCIS subject headings. The list is not fixed but can be added to when new desirable access points are determined.

Unlike the two preceding examples, most schemes to improve access to fiction through the catalogue are developed by individual teacher librarians to try and meet the needs of their users. Such schemes, in the experience of this writer, tend to vary enormously in complexity and value, and are frequently difficult to locate and evaluate. A number of such schemes appear to have been influenced by, or based upon, the published work of two people keenly interested in providing access to fiction - John Lee and Kerry White.

John Lee devised his 'Leefiction' scheme when he was teacher librarian at Muldoon Information Resources Centre. Lee recognised that OASIS Library created the opportunity to readily provide many more access points to fiction on the OPAC than those provided on SCIS records in the 1980s. Lee's scheme, which is detailed in a paper presented at the twelfth biennial conference of the Australian School Library Association and in a self published booklet, *Providing Access to Treasure* [9], provides twelve 'subject' access points to fiction works - Genre, Aspect (or sub genres), Issue (or topic), Era, Setting, Format, Medium (electronic mediums), Characters, Awards, Level (reading level), Rating (based on popularity) and Review (or summary). Ten of these headings are included in the subject field while two - Characters and Review - are placed in the notes field with keywords tagged. Lee's headings cover all the areas now covered by SCIS headings, but in a much more liberal and extensive manner, as well as other areas such as medium, level, ratings and review. This scheme was developed when the access to fiction provided on SCIS records was much more limited than it is now. Consequently Lee's headings are not compatible with SCIS headings making it necessary for teacher librarians using his scheme to either extensively amend SCIS catalogue records for fiction or to create their own fiction catalogue records. Lee has sold over 500 copies of the booklet describing his scheme but has not yet sought any feedback on where or how it is being applied.

Kerry White's two popular fiction guides *Australian Children's Fiction: The Subject Guide* and *Australian Children's Fiction: The Subject Guide Update* [10] provide access to recently published Australian children's fiction by author, title, illustrator, subject and genre. The first four access points tend to largely equate with SCIS access points. Indeed Kerry White's subject headings are SCIS subject headings (mostly topic headings) with some headings being adapted, or added, to further meet the particular needs of fiction. The genre headings used are actually a mixture of both genre and formats. Some of these over fifty 'genre' headings parallel equivalent SCIS terms, while others are access points not provided by SCIS such as 'Choose-your-own', 'Cumulative', 'Realistic' and 'Toy and moveable'. Some teacher librarians are now selecting and adding some of Kerry White's own subject and genre headings to SCIS records to enhance access to fiction through their library's OPAC.

OPACs have made it a feasible proposition for individual teacher librarians to develop their own methods of enhancing access to fiction through the catalogue. However, the absence of a range of well founded, published and regularly updated schemes and models for enhancing access to fiction plus the lack of time, and in some cases not having the necessary skills, to determine, formulate, put in place and maintain the changes needed to provide the desired access to fiction in an appropriate and consistent manner has deterred many teacher librarians from undertaking this task. Where such schemes have been put in place they have generally provided valuable and appreciated access to fiction within the schools where they operate. However such schemes are generally reliant on the enthusiasm and commitment of the incumbent teacher librarian for their continuance and quality, take up scarce time and can, if not skilfully and knowledgeably constructed, create inconsistencies and problems within the OPAC, especially in terms of incompatibility with, or unwanted duplication of, SCIS access points.

COMPARISON WITH ACCESS TO FICTION BEING PROVIDED IN NORTH AMERICAN SCHOOLS

In 1995, this writer had the opportunity to visit a number of processing centres, school libraries and book jobbers in North America while undertaking research on cataloguing for schools. The school cataloguing situation is far more diverse in North America than in Australia: some school libraries receive their catalogue records from processing centres which do all the cataloguing, plus other processing tasks, for all the school libraries in their district or school board area; many obtain their catalogue records from commercial book jobbers who provide resources fully processed and ready to be shelved; while others are responsible for their own cataloguing and tend to rely on commercial CD-ROMs containing many thousands of catalogue records from which they download the records they need. Some school libraries also do original cataloguing or look to other sources such as library catalogues on the Internet.

An aspect of this writer's research work was examining the access to fiction being provided in school libraries through the catalogue (which were predominantly OPACs). While the sample was small and diverse, there were a number of strong consistencies in this area with, overall, the access being provided to fiction being more extensive than the access being provided by SCIS. Firstly, there was universal agreement that all fiction records should have subject headings. Most cataloguers and teacher librarians were surprised that I even asked such a question! Genre headings were seen as key access points widely used by teachers and students. Headings such as 'Adventure stories', 'Ghost stories', 'Horror stories', 'Love stories', 'Science fiction' and 'Supernatural' were widely used. Format was also a frequently assigned and used heading with headings such as 'Cartoons and comics', 'Plot-your-own-stories' and 'Toy and movable books' being common.

Language subject headings were always given and were seen as a significant access point. This last result may well have been influenced, however, by the fact that the areas I visited were multilingual to some extent (Spanish in Texas and French in British Columbia and Alberta) and some of the Texan libraries had significant collections in Spanish. The more appropriate term 'language materials' was used rather than 'language text', e.g. 'Spanish language materials'. Topics were freely assigned a subject heading with the subdivision 'Fiction'. The use of real and imaginary places and characters as subject headings, however, was a more variable area. Most places were restrained in their use. One school district used a 20 per cent rule of thumb; a character or place was used as a subject heading if 20 per cent or more of the work related to the person or place. Literary prizes were frequently seen as an important access point with some libraries going so far as to group fiction works which had won certain literary prizes together on the shelves. Summaries and reading level or targeted audience were commonly given in the notes area and key worded. Both were seen as providing significant access. Reading levels were sometimes given as a code to prevent children reacting negatively to them.

WHAT THEN IS THE ANSWER FOR US?

The conclusion of this writer is that most of the desired access points to fiction can and should be provided by SCIS. They are commonly provided by cataloguing agencies in North America; and the actions and attitudes of SCIS cataloguers also indicate a willingness to rise to this challenge. OPACs rather than card catalogues are now the norm in Australian school libraries. SCIS needs to recognise this fact and revise its standards to capitalise on and utilise the extensive access that OPACs can provide to give users the wide range of access points to fiction that are now needed. SCIS is in a prime position to create and implement new standards which will provide this access in a consistent, authoritative and efficient manner for school libraries across Australia. If, however, SCIS does not act to establish its authority in this area then the current piecemeal approaches and solutions being applied by some individual groups and teacher librarians will become more widespread and entrenched and SCIS access to works of fiction will remain a constrained hotch potch.

This writer believes that SCIS needs to make the following changes to its cataloguing of fiction works in order to more adequately meet the information needs of users in school libraries:

- SCIS should officially recognise that providing access to works of fiction by a variety of access points, both topical and 'literary', is desirable and valuable
- the *de facto* practice of assigning subject headings to works of fiction as a matter of course should become official practice
- the development of more 'Literary' (fiction oriented) subject headings, such as headings relating to feelings and emotions, should be encouraged and supported. Examining Kerry White's list of subject headings would be a useful starting point
- genre should be recognised as a valid and desirable access point. Having done so, a list of desired genre terms should be developed, each term being carefully defined and with parameters between the use of genre headings and theme headings being set
- a range of format subject headings for print materials which are sought for by format, such as big books, pop-up books and wordless picture books in addition to

the already accepted 'Short stories' and 'Comics', needs to be provided. Additionally, headings for collections of short stories belonging to a particular literature should be given with the name of the literature given last rather than first as at present, e.g. 'Short stories, Indonesian' rather than 'Indonesian short stories', to allow all short stories to be readily located under successive headings

- consider using the term 'language materials' instead of 'language text' for resources in a language other than English, e.g. Japanese Language materials. Not all fiction is in book format
- examine the current low usage of literary prizes and fictional characters and places as subject headings. Consider what access would have value to users and relevance to the curriculum and how such access can be effectively provided
- create clear and effective guidelines for assigning the various types of fiction subject headings
- allow more than five subject headings per item. This card catalogue oriented limitation has outlived its usefulness
- create appropriate cross references for genre and other fiction oriented subject headings, e.g. if the format heading 'Toy and moveable books' is to be used, it would be beneficial to have 'see' references from rejected terms such as 'Pop-up books' and 'Lift-the-flap books'
- allow and encourage the assigning of summaries and targeted audiences or reading levels in the notes area of catalogue records. These can then be key worded on OPACs which have this facility to provide access by these aspects.

In undertaking changes in this area SCIS will need to consider what additional skills and knowledge it will be demanding of its cataloguers. Specialist training and back up might be needed. Those SCIS agencies where cataloguers work with or near other school library specialists with an interest and expertise in literature, e.g. reviewers of curriculum materials, have an advantage here.

ENHANCING ACCESS TO FICTION IN YOUR LIBRARY

SCIS is not unaware of the need for an examination and revision of its standards and practices with regard to providing access to fiction. There have been suggestions that such changes may well be part of a wider revision of SCIS standards to be commenced in the near future. When it may occur and what changes will take place is, however, uncertain. In the meantime many teacher librarians may wish to improve the access to fiction that exists in their library to meet the immediate needs of their users. Before embarking on enhancing fiction access for your users it is important that you stop and consider: Will the benefits be worth the time it will take to create these enhancements and to maintain them? If the answer is no, or maybe, it is probably best to stick with, and to promote to your users, the access being provided by SCIS. If, however, the answer is a clear yes then the teacher librarian will need to consider a number of practical issues before proceeding further. Such issues include:

- will amendments be made to SCIS records or will they simply be added to?
- will all fiction records be changed/enhanced?
- at what stage in processing will SCIS records be changed/enhanced?
- who will do it?
- will fiction records be changed/enhanced retrospectively or only for new works being added to the collection?
- what forms of access to fiction will be provided and how well will they coexist with/complement the access provided on SCIS records?
- where will such changes/enhancements be made on the catalogue records?
- how many genre, format, level, etc. headings can be given to one work?
- what terms will be used for the different types of heading, e.g. what genre headings will be used? How will such terms be defined to ensure their consistent application, e.g. fantasy as against science fiction.

Such decisions, when made, must be recorded as policy, and procedures developed to implement them, if there is to be consistency and efficiency in their use.

This writer is frequently asked what decisions he would take if placed in this situation. My preference would be: only to add to, rather than to make changes to, SCIS records; to only add material which would clearly be of benefit to my users; and, to confine my enhancements to the notes area of the catalogue record and use keywords to provide the additional access points. Using such a process would not interfere with the integrity of the SCIS records while still allowing me to provide whatever additional access points I consider desirable. I would probably confine my additional material to a brief summary of the story (one or two sentences), a targeted audience or reading level and a genre heading and/or format heading if appropriate.

For the targeted audience or reading level I would draw from a set list such as that given here. If I opted for the second list (reading level), I would need to create a clear definition for each term to ensure I always used the same term for the same level of ability.

Audience

Preschool
Lower primary
Middle primary
Upper primary
Lower secondary
Middle secondary
Upper secondary

Reading Level

Beginning reader
Emergent reader
Developing reader
Independent reader
Reluctant reader

With regard to genre I would have to first decide if I wanted to include a term for each of the genres my users would want access to, or only to include terms for desired genres which do not have SCIS genre-like headings. If I settled on the first option I would then draw upon existing lists of genre such as the genre headings used by the WA Department of Education, John Lee's 'Leefiction' genre headings and the Open Learning Curriculum Library's genre headings to help me choose terms appropriate to my users. My final choice would probably look something like:

Adventure stories
Animal stories
Classics
Family stories
Fantasy
Ghost stories
Historical fiction
Horror
Humour
Love stories
Mystery
Science fiction
War stories

It would be important to briefly but clearly define each term to ensure they are used consistently. For format I would create terms for the formats sought by my users, with the exception of comics and short stories which are already assigned by SCIS. Such terms might include:

Abridged
Big books
Choose-your-own stories
Stories without words
Stories in rhyme
Diaries
Letters
Pop-up Books

Such a scheme would be simple to implement, would take minimal additional time and would serve as an effective stopgap until such time as SCIS revises the access it provides to fiction.

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[2] Curriculum Corporation, *SCIS Subject Headings List* 3rd. ed. (Melbourne: DW Thorpe, 1994), p. 319.

[3] *Curriculum Corporation Standards for Cataloguing and Data Entry* (Melbourne: Curriculum Corporation, 1991); *Library of Congress Subject Headings* 19th ed. (Washington, D.C.: Library of Congress, 1996); *Sears List of Subject Headings* 15th ed. (New York: HW Wilson, 1994).

[4] *Curriculum Corporation Standards for Cataloguing and Data Entry, op. cit.*, p. 89.

[5] *Ibid.*

[6] *Ibid.*

[7] *Ibid.*, p. 90.

[8] *Ibid.*, p. 16.

[9] John Lee, 'Providing Access to Treasure : Leefiction Subject Headings.' In *Proceedings of the Twelfth Biennial Conference of the Australian School Library Association* (Leura, NSW: Australian School Library Association, 1991): 89-96; John Lee, *Providing Access to Treasure: Leefiction Headings for School Libraries* (Tuggerah, NSW: John Lee, undated).

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New Schools, New Libraries, New Challenges - Automating New School Libraries in Queensland

Pat Brosnan, Fran Robinson and Bruce McDonald

INTRODUCTION

Setting up new state schools in Queensland with a fully operational resource centre has been part of the educational landscape for more than fifteen years. Since 1990, over forty preschool/primary and secondary school sites have opened with another eight to open in 1997 and plans for ten more in 1998. While most are located in the populous south-east corner, other population growth areas throughout the state are catered for as well.

The 'Opening Collections in New Schools' project has seen an evolution of processes and procedures designed to accommodate the various external influences operating on the educational community. Influences such as the growth in part-time and casual employment, the trend towards greater decentralisation, changes in book retailing, and the increasing importance of automation and electronic communication have all had some degree of impact on the project. It is in the area of automation and electronic communication that the greatest impact has been observed.

Since 1993 Regional Offices have supported the establishment of new school resource collections and associated facilities by a centralised unit such as the Open Access Support Centre, one of three statewide Support Centres in Queensland. This service has been consistently rated by new schools as highly valuable. In the six months prior to opening, a project team assembles a fully operational resource collection for installation in the school during the first weeks of the new school year. This ensures that students and teachers have immediate access to the resources required for the implementation of effective learning and teaching strategies.

THE OPENING COLLECTIONS IN NEW SCHOOLS PROJECT

Each project is effectively a twelve month operation which moves through six distinct phases - planning, acquisitions, catalogue development, delivery to schools, support and training, and review.

PLANNING

The planning phase, undertaken by permanent staff at the Open Access Support Centre involves the preparation of budget estimates based on lists of new schools provided by the Department's Facilities Branch, the selection and employment of casual project staff, establishing preferred suppliers and a review of feedback provided by the previous year's schools.

Budget preparation requires calculating amounts for resources, operating expenses (SCIS Recon, covering, postage), automation (hardware and software), freelance services (cataloguing, computer consultants), salaries and travel.

Project staffing is designed around the need to provide flexibility, and typically includes two experienced teacher librarians employed as resource officers and a number of Administrative Officers, depending on the number of schools being established.

Resource Officers, employed for up to 36 weeks, work closely as a team to deal with the common aspects of the project and assume specific responsibilities for either primary/preschool or secondary levels of the project, depending on their expertise. Administrative Officers, employed for up to 28 weeks, share all operational aspects of the project but generally each will focus on processing a specific school's resources.

The formula for calculating administrative staff is based on a standard 30 hours for each 100 items purchased. These hours include all operational aspects undertaken by Administrative Officers from initial checking of resources against invoices to the final activity of stocktaking on site at the school.

ACQUISITIONS

The acquisition phase overlaps the catalogue development phase and focuses on the selection, ordering and direct purchase of book and non-book resources, library equipment and stationary, and computer hardware and software. Initial collections for preschools and primary schools together range between 1700 and 1900 items while secondary schools receive 2000 items.

Selection is based on feedback from previously established schools, recent reviews of appropriate resources, publishers' catalogues, the resource officer's detailed knowledge of the curriculum and general reading levels of the various age groups.

Ordering of book and non-book resources is undertaken using standard Departmental procedures for requisitioning and purchasing. The project's tight timeline necessitates that all orders are dealt with as a matter of urgency and for this reason this part of the process relies heavily on the support of Finance and Administration Officers within the Open Access Support Centre. Previously established preferred suppliers are expected to provide multiple identical invoices, one for each school, in alphabetical order of either title or author. This facilitates data conversion as the collection for each school will have identical barcodes differentiated by header and school code.

A list of basic audio-visual equipment for inclusion in each new resource centre is compiled by project officers and submitted to Facilities Branch for purchase. This initial provision is not all inclusive in terms of quantity or breadth but rather is designed to provide a basic array on which schools can build. A stand alone computer with CD-ROM and printer is included for use as a student workstation. In some instances schools have requested that this item not be supplied initially, the money being saved until the school can afford to install a CD-ROM jukebox in its place.

Departmental standards which must be complied with have been developed for the selection of both hardware and software for use in the resource centres. A network of five computers comprising a file server, catalogue and circulation workstations and two OPACs is supplied to each of the larger primary schools and each secondary school. Other equipment supplied with this network includes an uninterrupted power supply unit, laser printer, tape back-up unit and barcode reader. Software provided includes Microsoft Office Professional (MS Word, Excel, Powerpoint, Access and Mail), Procomm Plus for Windows, OASIS Library and SCIS Recon. Novell networking software has been used prior to 1996 but for the schools opening in 1997 Windows NT for workgroups will be adopted.

CATALOGUE DEVELOPMENT

For most new schools, catalogue development encompasses the configuration of a computer network to run OASIS Library software and the loading of SCIS data. All software for a school is installed on its network while the project is in operation. Installation of software and configuring the system is done by the Open Access Support Centre systems supervisor.

The OASIS Library modules installed depend on the specific schools. Feedback from primary teacher librarians indicated that little use was made of Periodicals, Acquisitions and Guidelines modules and that annual maintenance costs on these were unnecessary. Modules supplied are as follows:

- Management, Reports and Utilities

- Circulation
- Inquiry
- Periodicals (Secondary schools only)
- Acquisitions (Secondary schools only)
- Guidelines (Secondary schools only)

Cataloguing details are obtained from the SCIS database using direct online Dobis facilities available at the Open Access Support Centre. Machine-readable catalogue records (SCIS Recon) are ordered from Curriculum Corporation and downloaded into the OASIS Library database.

Basic system parameters, passwords, resource loan categories and location codes are set in OASIS Library. SCIS catalogue records are downloaded. Resource officers edit these records as required while items not found on the SCIS database are catalogued by Open Access Support Centre librarians. Acquisition details are added and barcodes are checked to ensure they match the accession numbers. Once the database is complete, Accession Register, Shelf List and some Catalogue Reports are generated both for distribution to the schools and as a reference for future project teams. This list is often used to satisfy enquires, sometimes from private schools, regarding the purchase of appropriate materials for a new library. Figure 1 shows the configuration for OASIS Library installed in new schools.

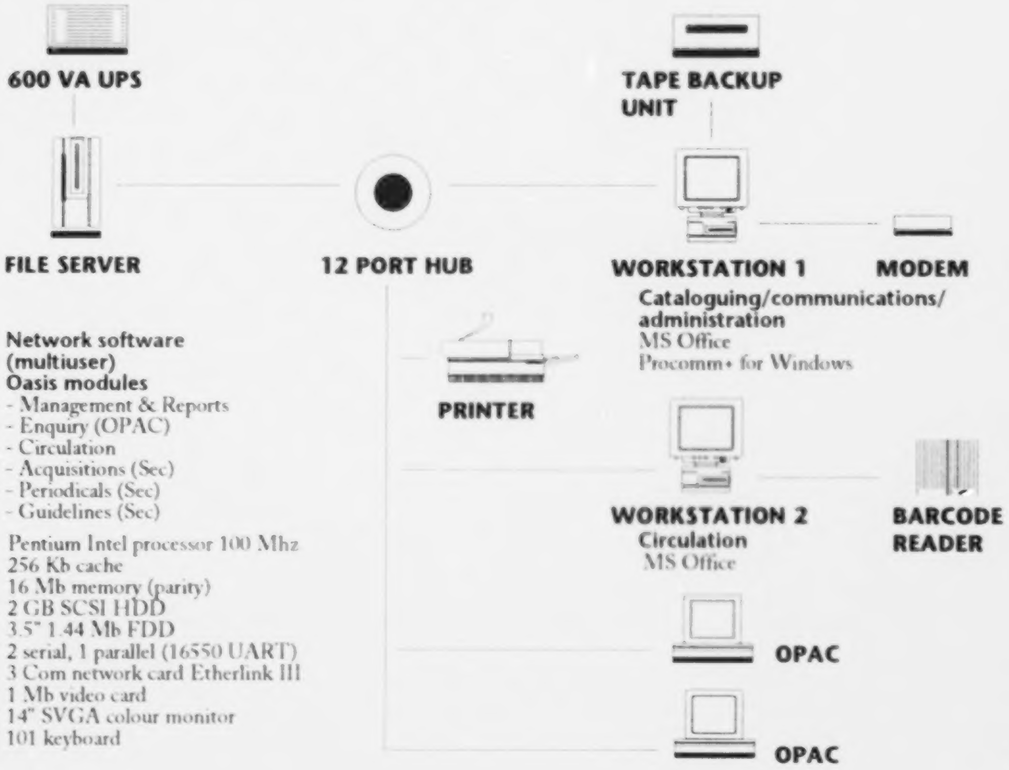
DELIVERY AND INSTALLATION

In the delivery phase both the collection and automated system are normally installed within two days of each other.

The automated system is delivered to each school via courier, set up and tested by computer consultants employed by the project to ensure that all hardware and software has been delivered and is in working order. A sign-off checklist is used to account for each item of equipment and software package.

Resources are delivered to schools by Australia Post. In the case of schools within reasonable driving distance of Brisbane, a resource officer and several administrative officers help shelve the collection and conduct a stocktake on site.

Figure 1:Automated system configuration for new school resource centres, 1996


600 VA UPS
TAPE BACKUP UNIT
FILE SERVER
12 PORT HUB
WORKSTATION 1
MODEM
Cataloguing/communications/administration
MS Office
Procomm+ for Windows
PRINTER
WORKSTATION 2
Circulation
MS Office
BARCODE READER
OPAC
OPAC

Network software (multiuser)
Oasis modules
- Management & Reports
- Enquiry (OPAC)
- Circulation
- Acquisitions (Sec)
- Periodicals (Sec)
- Guidelines (Sec)

Pentium Intel processor 100 Mhz
256 Kb cache
16 Mb memory (parity)
2 GB SCSI HDD
3.5" 1.44 Mb FDD
2 serial, 1 parallel (16550 UART)
3 Com network card Etherlink III
1 Mb video card
14" SVGA colour monitor
101 keyboard

Workstations 1 and 2

Pentium Intel processor 100 Mhz
256 Kb cache
16 Mb memory (parity)
1 GBHDD
3.5" 1.44 Mb FDD & 5.25" FDD
2 serial, 1 parallel (16550 UART)
3 Com network card
2 Mb video card
15" SVGA colour monitor
101 keyboard

OPACs

Pentium Intel processor 100 Mhz
256 Kb cache and 8 Mb memory
16 Mb memory (parity)
1 GB HDD
3.5" 1.44 Mb and FD Lock
2 serial, 1 parallel (16550 UART)
3 Com network card Etherlink III
1 Mb video card
14" SVGA colour monitor
101 keyboard

TRAINING AND SUPPORT

The increasing complexity and constant changes in the area of information technology require that an increasing emphasis be placed on the training of resource centre staff. The training provided doesn't purport to be complete but rather it is designed to ensure that the teacher librarian has a basic operational knowledge of the system and how it operates. Training focuses on four aspects, namely: network considerations, introductory OASIS Library, online communication, and specific OASIS Library training.

Immediately after installation of the network and resource collection, training sessions are commenced. This normally takes three days, hands on for resource centre staff, spread over a period of approximately four weeks. Project personnel deal with the following aspects:

- Network Operation and Introductory OASIS Library
- Follow-up introductory OASIS Library
- Online Communication

Local Regional Systems Supervisors are invited to attend the network orientation in-service so that they will be able to provide assistance to the schools in the future. The different components of the network are explained, turning on and off equipment, logging on and off the network, and using the tape backup system, barcode reader and printer.

The introductory OASIS Library session covers basic operations such as setting management system parameters, setting and changing passwords, inquiry, manual cataloguing and backing up. The follow-up session introduces generating reports, generating the calendar, entering borrowers, basic circulation activities, and setting security.

The communications segment introduces the use of the modem to access external databases such as the Department of Education's Information Access Network (IAN), the Film and Video Library (Open Access Support Centre), other non-school libraries within the Department as well as other providers. Internet training has not been part of this process, however, it is under consideration and in 1997 it is proposed to undertake a trial to establish the feasibility of including it in future projects.

In addition to learning how to configure the modem, resource centre staff are introduced to the basic operations of the communications software with specific emphasis on downloading information and converting it from a text file. Particular attention is given to providing instruction in use of the command line interface operators required by the IAN.

Specific OASIS Library training is provided directly by Softlink Australia. Funds from the project are transferred to each school to allow the school to purchase training for two people to attend each of four practical workshops.

In addition, schools receive a complete support package containing OASIS Library documentation, manuals for each of the software programs, Departmental publications applicable to resource centre operations, subscriptions to OASIS Faxlink and SCIS, standard cataloguing tools, a hard copy of the catalogue reports and a *Survival Manual.*

The *Survival Manual,* updated each year, introduces the automated system, SCIS, the communications software and other software supplied. It is specific to those schools included in the project for each particular year. It provides a ready reference and written procedures which enable staff with limited knowledge of computers to operate the system without needing to refer to and decipher the many manuals provided. Each aspect of the training sessions is also supported in the *Survival Manual,* printed single-sided to allow staff to make notes and to append changes they make later.

REVIEW

The final review stage seeks feedback from schools and explores ways to refine processes. A feedback form, developed in consultation with the Client Services section of the Open Access Support Centre, asks resource centre staff to rate the balance of the collection, the level of assistance received, and the value of support and training provided.

Feedback from schools in the past has been very positive. Principals and teacher librarians rate the service as highly valuable. They appreciate the enormous saving in time and labour in receiving a library set up and ready to go with a basic stock of fully processed and catalogued resources, audio-visual hardware and software, and an automated system which provides access to and control over resources. The range of fiction, non-fiction, reference books, and audio-visual resources is consistently rated as valuable to excellent. New teacher librarians and library aides value the expertise of project staff and are appreciative of any support that is offered.

FUTURE CHALLENGES

The value of a project such as this is evidenced by the fact that schools consistently rate the service as highly valuable. Achieving this standard is not gained easily, with constant negotiation and variation to processes and procedures being required in order to ensure the project is completed on time. Problems encountered in the past include resource centre buildings being incomplete on arrival for set-up, modem lines either not installed or connected and delays in appointing project staff delaying the commencement of the project. Each of these is very much a temporary situation which can be addressed relatively easily. The challenges which are more difficult to address centre around the provision and maintenance of staff with the knowledge and expertise to manage the cooperative planning and teaching aspects of the teacher librarian's role as well as the knowledge and skill necessary to maintain a computer network with an array of software applications.

The rapidly changing environment in the areas of computer software and hardware and communications will necessitate the teacher librarian being engaged to ever increasing degrees in the process of acquiring knowledge and skills in the use of technology. This will be necessary to provide a resource service which is both relevant and effective.

In the same way as teacher librarians have to deal with this changing and expanding role the resource officers, systems supervisors and other staff contributing to the Opening Collections in New Schools Project are being confronted by the same issues. The future direction of this project is clearly one which will be influenced heavily by technological change.

AGAMA: A Simple, Low-Cost Automation System for Small Libraries, or, A Fair Go For All

Gail Dous and Mary West

INTRODUCTION

No-one would deny that staff and students in small schools need access to the resources in their library just as much as their counterparts in larger schools, but how can a small school provide that equity when automating the library is so costly and requires trained staff with sufficient time to maintain it?

This was the dilemma that faced the Consultants - Education Libraries at Northern Territory Library. In a region of Australia where nearly 60 per cent of the schools would fall well below the 'minimum enrolment recommended' for automation it was indeed a problem, and when it was combined with the fact that most of these schools are located in remote Aboriginal communities already disadvantaged by their isolation, it was one that clearly required an original solution.

What was needed for these schools was an automation program that would:

- operate on hardware already in the schools
- be inexpensive to implement, and;
- be easy for people with few library skills, and possibly English as a fourth or fifth language, to use and maintain.

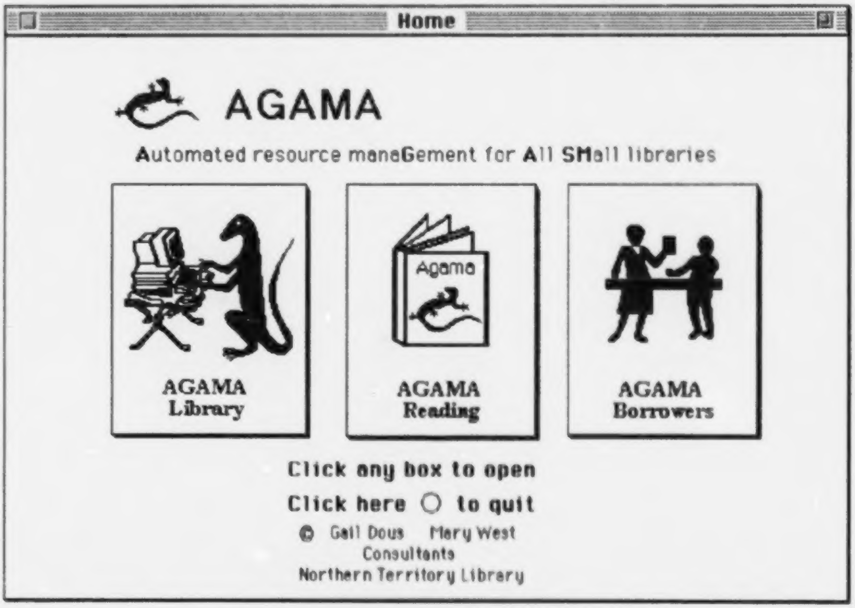
All Northern Territory schools have Macintosh computers which staff and students use regularly, so the hardware decision was an easy one. The software solution presented itself in the form of HyperCard, a software development program that allows users to create and design their own software. Fortunately for the consultants there were staff within the NT Department of Education with HyperCard expertise from whom they could learn enough to create the library automation program they called AGAMA.

Having worked with commercial automation programs in urban schools and having knowledge of the needs of the remote schools, the consultants set about to design a program that would suit the remote schools' requirements and, at the same time, provide a means of automating libraries quickly and uniformly. It was never envisaged that AGAMA would be the ultimate answer to all of a school's information needs, but it was hoped that it would provide immediate access to the school's library resources as well as the opportunity to learn valuable information technology skills. These skills would be readily transferable to automation programs in other libraries or new technologies as they became available.

THE PROGRAM

The structure of the program is simple. By double-clicking on an AGAMA icon on the desktop, the user opens the Home card.

Figure 1: AGAMA Home Card



AGAMA

Automated resource manaGement for All SMall libraries

Click any box to open

Click here ○ to quit

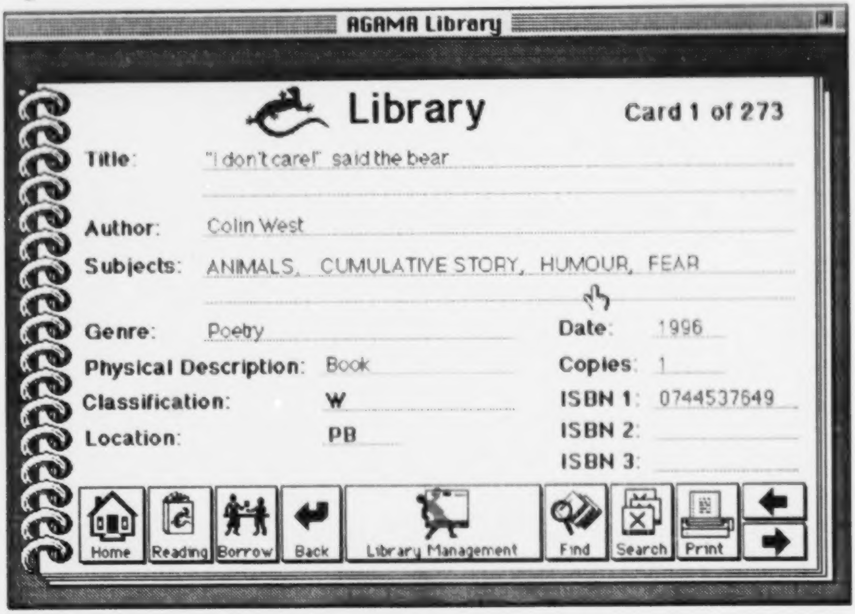
© Gail Dous Mary West
Consultants
Northern Territory Library

From there it is an easy choice of one of three modules: AGAMA Library (the library catalogue), AGAMA Borrowers (the list of borrowers), or AGAMA Reading (an optional module that can be used to create a catalogue of reading resources in the school).

AGAMA LIBRARY

AGAMA Library consists of a 'stack' of cards, one for each unique resource in the library. The information on the cards is not dissimilar to that found on the old library catalogue cards: title, author, subjects, physical description, classification, date of publication and ISBN. There are some differences, however. The subjects used are simple keywords (all that is required by a computer to conduct a search), rather than the more difficult to use, traditional subject headings with subdivisions. A genre field has been included to facilitate the locating of resources to support the English curriculum and the location and number of copies have been included as well.

Figure 2: An AGAMA Library card



Card 1 of 273

Title: "I don't care!" said the bear

Author: Colin West

Subjects: ANIMALS, CUMULATIVE STORY, HUMOUR, FEAR

Genre: Poetry

Date: 1996

Physical Description: Book

Copies: 1

Classification: W

ISBN 1: 0744537649

Location: PB

ISBN 2:

ISBN 3:

To create the library catalogue in the first place, the resources of the library are searched against the consultants' AGAMA database. This database of catalogue records contains nearly 20,000 records at the present time, and is growing continuously. As the record for each item is located, it is marked, so that when all resources have been searched, the marked records can be exported into a temporary file and then imported into an empty AGAMA Library stack. Usually records are located for about 75 per cent of a school's library resources, so the initial stage of automation is completed quite quickly. Any resources not located on the AGAMA database are then catalogued and added to both the school's catalogue and the AGAMA database.

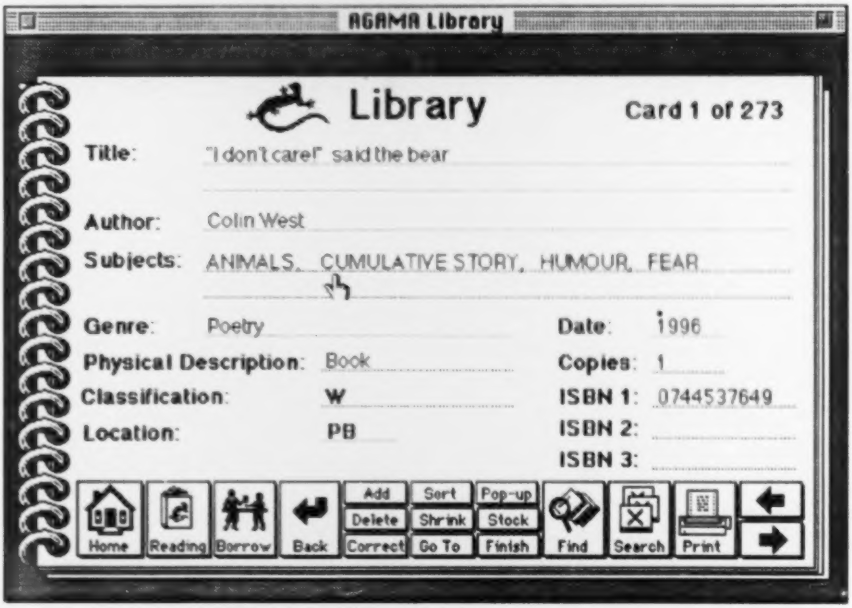
This import function can also be used to import new records. The consultants, often purchase resources on behalf of remote schools, and it is an easy and efficient process for them to centrally catalogue these and send a disk of records to the school, along with the new resources.

Once the catalogue has been created, the 'Find' and 'Search' buttons are used to locate required resources. Boolean searches using any word(s) or part word(s) from any fields can be conducted using, for example, an ISBN, two or more subjects combined, words in any order from a title, word(s) from a title with an author's surname, a subject with a location, a genre with a subject, and so on.

'Find' locates records one at a time that contain the search term(s). It is most often used when locating an item to be lent. 'Search' locates all the records that contain the search term(s) and allows the user to print the list of resources created by the search. For example, a list of all the *picturebooks published in the 1990s featuring African animals,* is produced by using the following terms in a Boolean search: **pb 199 africa animals.**

Security in AGAMA Library is not a problem. While users find and search for resources or navigate to other modules, there is no danger of the database being altered accidentally or by design. It always remains locked. When the library manager needs to catalogue new resources or delete old ones, a password must be used to open the 'Library Management' button to reveal the nine management buttons underneath.

Figure 3: An AGAMA Library card with management buttons showing



Card 1 of 273

Title: "I don't care!" said the bear

Author: Colin West

Subjects: ANIMALS, CUMULATIVE STORY, HUMOUR, FEAR

Genre: Poetry

Physical Description: Book

Classification: W

Location: PB

Date: 1996

Copies: 1

ISBN 1: 0744537649

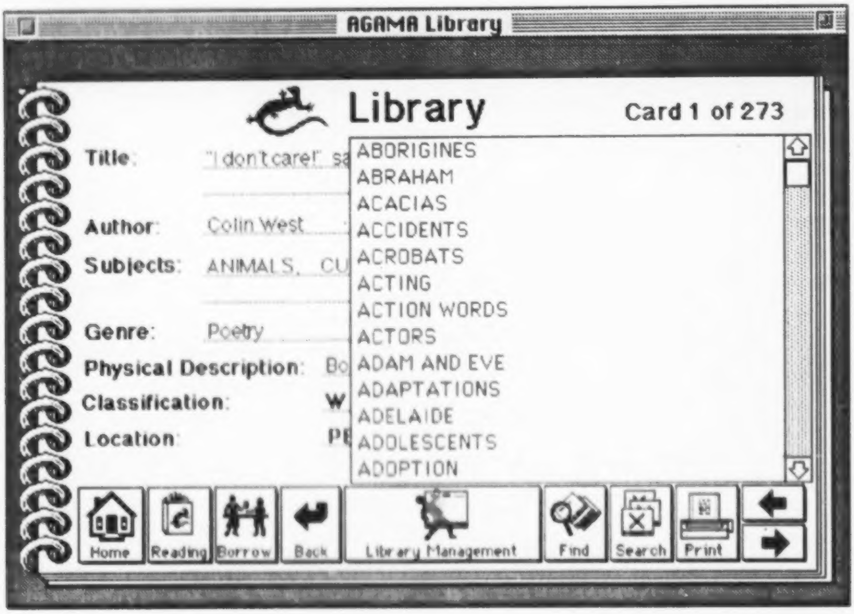
ISBN 2:

ISBN 3:

These buttons allow the library manager to add and delete records and to complete a variety of other management tasks.

Adding or cataloguing a resource onto AGAMA Library is quite simple. The title and the author are typed into the appropriate fields, then the information for most of the remaining fields is either typed or added from pop-up lists by clicking on the correct word(s) or number in the lists.

Figure 4: An AGAMA Library card with pop-up list of subjects showing



Card 1 of 273

Title: "I don't care!" sa

Author: Colin West

Subjects: ANIMALS, CU

Genre: Poetry

Physical Description: Bo

Classification: W

Location: PE

ABORIGINES
ABRAHAM
ACACIAS
ACCIDENTS
ACROBATS
ACTING
ACTION WORDS
ACTORS
ADAM AND EVE
ADAPTATIONS
ADELAIDE
ADOLESCENTS
ADOPTION

The ISBN is added either by typing the number or barwanding the ISBN barcode on the resource. The spelling of subjects that have been typed into the subject field can be checked using the spellcheck facility.

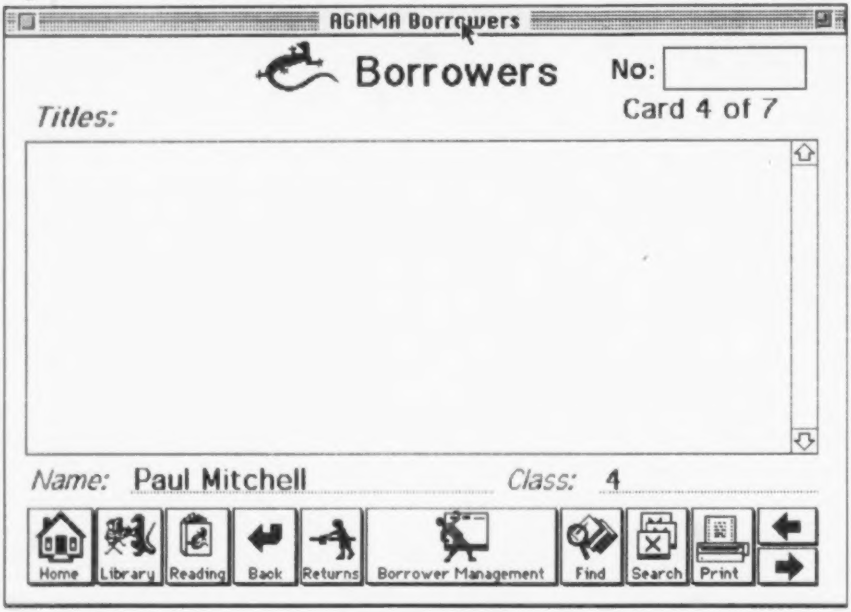
Being able to catalogue using terms from the pop-up lists overcomes any difficulties the library manager may have with typing or spelling. The pop-up lists, especially the subject and classification lists, serve as authority files for those with little or no library training. All pop-up lists can be modified using the management button 'Pop-up'. Terms can then be added or deleted tailoring the lists to individual schools.

Other management tasks that one can perform include correcting and sorting records, compacting AGAMA Library to save space on the hard disk, going to a particular card by number and printing a stocktake report. The 'Finish' button closes 'Library Management' and relocks the AGAMA Library module.

AGAMA BORROWERS

In AGAMA Borrowers there is one card for each library borrower. On their card is entered their name, class and barcode number (optional). A resource is lent to a user by clicking on the title in AGAMA Library and selecting the correct borrower. When this is done, the date of borrowing, the title, the author, the copy number and the ISBN, are automatically recorded on their card.

Figure 5: An AGAMA borrowers card



AGAMA Borrowers

Borrowers

No:

Card 4 of 7

Titles:

Name: Paul Mitchell

Class: 4

When items are returned, clicking on the loan details automatically transfers this information to a pop-up 'returns' box together with the date the item was returned. This box contains a record of the last 200 items borrowed and can be useful for student and teacher reference. Lists of items on loan, can be printed, either by individual borrower or by class.

MAINTENANCE OF AGAMA

Program maintenance is simple with AGAMA. There is no need to save data changes in AGAMA, as HyperCard saves automatically. This is an excellent feature in areas where power fluctuations are common. After any major update of data, it is recommended, that a backup of the AGAMA modules be made. This is a simple, fast, standard Macintosh process.

Three manuals have been written for the AGAMA program. The first is a comprehensive yet simple, illustrated guide, for the library manager, to all aspects of using and maintaining the program. The second is an abridged version of the main manual for those who are only using the program and are not involved in managing it. The third is an installation manual for those libraries purchasing AGAMA and implementing it themselves.

When the program is installed in a Northern Territory school or sold to a school interstate, it is delivered as a complete package which includes all necessary manuals and disks, masters for photocopying borrower barcodes and resource barcodes (for resources without ISBN barcodes), masters for photocopying spine labels, and information on the types of labels required.

CONCLUSION

AGAMA is a simple user-friendly, inexpensive automation system designed to facilitate access to, and control of, resources in small libraries where a sophisticated automation system is not a viable option. It consists of linked modules which provide the library with both a catalogue and a circulation system.

The program has been very well received by schools in the Northern Territory and has been officially endorsed by the NT Department of Education as the standard library automation program for all small/remote NT schools. Installation sites include many schools in remote Aboriginal communities, several small urban primary schools, preschools and special schools, and several special libraries within the Department of Education and other government agencies. Demand for the program is high and the number of sites grows steadily.

AGAMA is a versatile program that is just one piece in the whole school library automation picture. It is not the program for all schools, but it does fill a niche. It provides schools which would otherwise be disadvantaged in the information technology 'race', an opportunity to keep abreast. It provides a fair go for all.

FOR FURTHER INFORMATION

Anyone interested in more information about AGAMA may contact:

Gail Dous <gail.dous@nt.gov.au> or Mary West <mary.west@nt.gov.au>
Consultants, Education Libraries
Northern Territory Library
GPO Box 42 Darwin NT 0801
Tel: (08) 8999 8932 or (08) 8999 8933
Fax: (08) 8999 8998

The Code Catalogue: The Teaching and Learning Alternative to Automation

Alan Ford

INTRODUCTION

The Code Catalogue teaching and learning resource package is an education-centred alternative to automated library management systems. The system grew out of a unique combination of educational theory and library practice based on the premise that real educational needs must come before the perceived organisational needs of school and community libraries. Whereas fully integrated library automation systems tend to combine an electronic replica of a card catalogue with facilities to deal with the housekeeping functions of library administration, the Code Catalogue is a fresh look at information access methods in the light of learning theory and the possibilities offered by the advent of affordable computer technology.

As the Code Catalogue is applicable to any library system using formal subject headings, its use is not restricted to its dedicated library software (LibCode), so it can be used as an overlay on fully automated systems - to date, BookMark™ and OASIS Library™. LibCode, the dedicated software system, is presently in use in over 300 sites in Queensland. Most of these sites are school libraries (both primary and secondary), with pupil numbers ranging from 6 to 1800. It is also used by a number of school support centres and non-profit community organisations and in some business libraries.

THE CODE CATALOGUE CONCEPT

The Code Catalogue specializes in assisting the teaching and learning processes by providing access to information within a structured framework of meaningful relationships between topics. Its design takes into account

- the universal structure of knowledge as represented in classification systems such as Dewey and Library of Congress
- the emphasis on schemata and concept maps in educational psychology

- on-going observation of library practice and a commitment to constant improvement of the system's efficacy in supporting teaching and learning in schools collegiate input of practitioners in librarianship and education.

THE SEARCH STRATEGY

The searching processes built into the system are designed to take account of the structure of knowledge and to replicate the skills students need for effective note-taking and structuring of information, notably concept mapping and structured overviews. As a result, the catalogue is a useful teaching tool rather than merely a retrieval mechanism. The catalogue's rapid retrieval of related subject headings is based on a series of two or three letter codes based on the Library of Congress Classification. The search process is bi-directional, rather than just searching from the general to the specific as was the case with the traditional catalogue. The linkages ensure that the searcher is able to move from broad to specific terms and, importantly, from specific to broad subject areas as the inherent grouping of like terms means that users can easily focus or widen their subject selection as required (see Figure 1).

THE CODES

The codes were developed in order to facilitate library use for all stake-holders:

1. The Searcher: the codes help users to group related headings so they experience success rather than dead-end searches; they facilitate the logical browsing of subject areas within the catalogue and they help users to develop concepts by the grouping of like terms

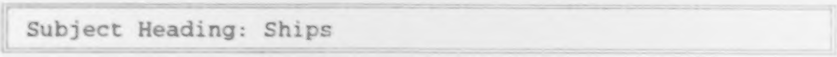
2. The Cataloguer: the codes assist in the selection of Dewey numbers and the allocation of valid subject headings

3. The Teacher: the codes allow for the preparation of instant bibliographies; they aid the selection of materials to fill collection gaps for specific curriculum areas and they facilitate the rapid review of the availability of resources for a work unit

4. The Principal or the Resource Manager: the codes allow for the examination of the overall balance of the collection; planning and budgeting for collection supplementation and analysis of the resource support available to specific curriculum area.

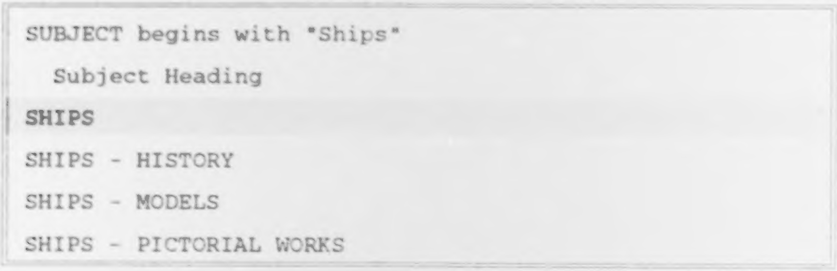
Figure 1: The Search Process: An Example from HYG

1. Searcher types in "ships"



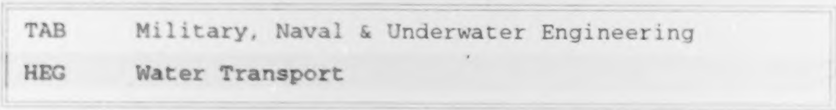
```
Subject Heading: Ships
```

2. Selected subject headings are retrieved

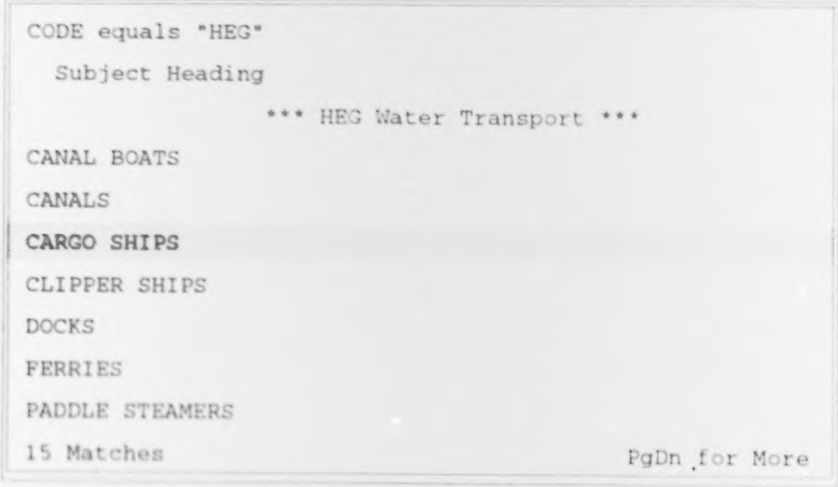


```
SUBJECT begins with "Ships"
  Subject Heading
SHIPS
SHIPS - HISTORY
SHIPS - MODELS
SHIPS - PICTORIAL WORKS
```

3. User presses <F3> for the codes of the highlighted subject heading then chooses appropriate code, highlights it and presses <ENTER>



```
TAB     Military, Naval & Underwater Engineering
HEG     Water Transport
```



```
CODE equals "HEG"
  Subject Heading
                     *** HEG Water Transport ***
CANAL BOATS
CANALS
CARGO SHIPS
CLIPPER SHIPS
DOCKS
FERRIES
PADDLE STEAMERS
15 Matches                                      PgDn for More
```

4. User chooses appropriate heading and presses <ENTER> for titles

THE CODE CATALOGUE AND THE NATIONAL CURRICULUM

The structure of subject groupings in the Code Catalogue approximates the structure of key learning areas of the National Curriculum. While there has been no attempt to directly align the codes to the National Curriculum as yet, the potential is clearly there should the National Curriculum be adopted universally. As the code overlay does not affect the integrity of library data, changes to the codes can be made centrally to reflect changing emphases in schooling without adversely affecting any individual school's data.

APPLICATIONS OF THE CODE CATALOGUE

As noted in the introduction of this chapter, the Code Catalogue can be implemented through dedicated software or as an overlay [see Figures 2 and 3].

IMPLEMENTATION OF THE CODE CATALOGUE USING LIBCODE

The LibCode teaching and learning resource package is a flexible, low-cost alternative to the use of automated library management systems, incorporating the Code Catalogue, for small to medium collections. Although designed specifically for school libraries, it is now also being used by a number of businesses and community-based organisations. The developers of LibCode believe that school staff and students should have quality access to their resources even where access to specialized staff is limited or non-existent. The Code Catalogue requires inexpensive software and can function effectively on entry-level MS-DOS hardware. The system requires minimal on-site expertise for maintenance and day-to-day use.

LibCode consists of a number of integrated modules built around the two integrated cataloguing modules: CodeCat and CodeFile. CodeCat is the database used to collect the cataloguing details of an organisation's resources whilst Codefile is a validation file which provides consistency in access points. Additional modules are incorporated according to the school's (or organisation's) needs. For example, a very small school may choose to use CodeCat, CodeFile and HYG only. Larger schools would normally choose to use most or all available modules.

Figure 2: Implementation of the Code Catalogue Through Libcode, OASIS Library and BookMark

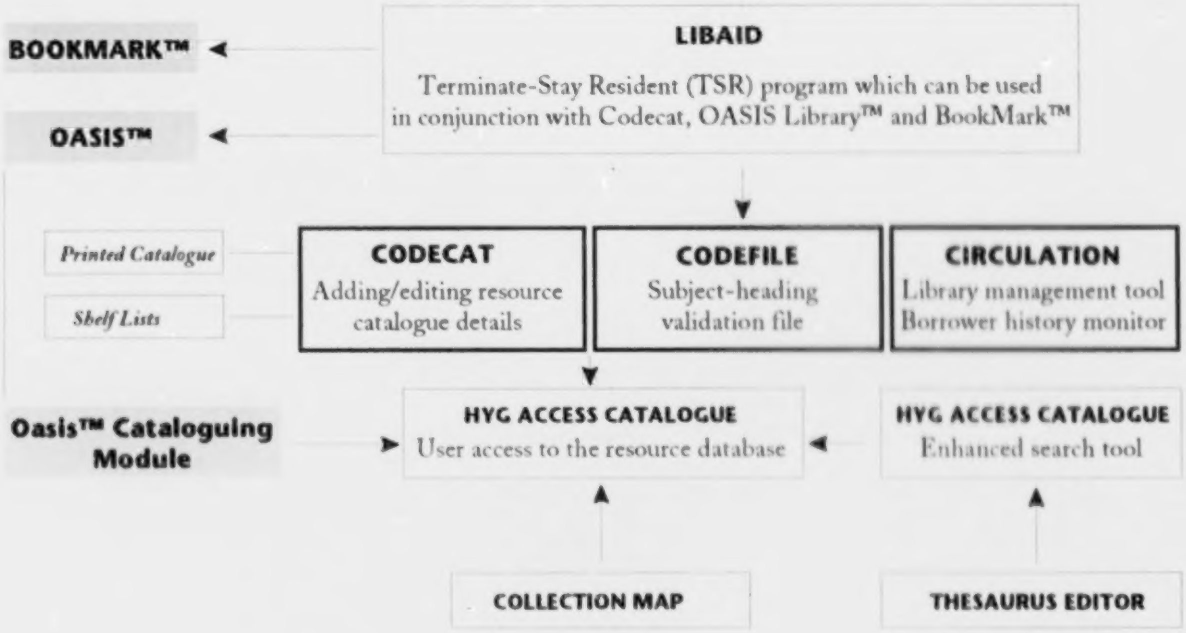

BOOKMARK™
OASIS™
LIBAID
Terminate-Stay Resident (TSR) program which can be used in conjunction with Codecat, OASIS Library™ and BookMark™
Printed Catalogue
Shelf Lists
CODECAT
Adding/editing resource catalogue details
CODEFILE
Subject-heading validation file
CIRCULATION
Library management tool
Borrower history monitor
Oasis™ Cataloguing Module
HYG ACCESS CATALOGUE
User access to the resource database
HYG ACCESS CATALOGUE
Enhanced search tool
COLLECTION MAP
THESAURUS EDITOR

Figure 3: Available modules

Feature	LIBCODE	OASIS	BOOKMARK
LIBAID	-	✓	✓
HYG	✓	✓	-
COLLECTION MAPPER	✓	✓	-
THESAURUS	✓	-	-
THESAURUS EDITOR	✓	-	-
PRINTED CATALOGUE	✓	-	-
SHELF LIST	✓	-	-

THE ADDITIONAL MODULES

As indicated in Figures 2 and 3, there are a number of additional modules available in the LibCode system. When cataloguing, library staff can use LibAid to assign Dewey Numbers and relevant subject headings. Once catalogued, details of the resources are made available through the HYG access catalogue. The Thesaurus is available to assist users if they have difficulty locating references pertaining to a term which is not a valid subject heading. A printed catalogue can be produced if computer access terminals are limited, and shelf lists and online stocktaking facilities are available. Loans can be tracked using circulation, and a collection mapping facility assists resource managers to analyse collection strengths and weaknesses and to plan future acquisitions.

LIBAID

LibAid is a tool to assist library staff to catalogue materials. It is useful for trained cataloguers and novices alike. LibAid (the Cataloguer's Assistant) is a Terminate-Stay-Resident (TSR) program - that is, a program that sits in the memory of the computer waiting to be called into use by pressing a special key combination. LibAid's data files contain a list of some 9000 valid subject headings as well as an additional 5000 non-valid access points. Both valid and non-valid access points have been assigned codes from the Code Catalogue which structure the relationships discussed in the first part of this chapter. LibAid also links the subject headings to corresponding Dewey Numbers which can be dropped into the CodeCat module of LibCode when cataloguing. This feature is particularly useful for non-expert cataloguers in small schools or non-educational organisations. Extra subject headings or access points can be entered into LibAid using a purpose-built editor.

HAVE YOU GOT? - THE RESOURCE ACCESS SOFTWARE

The Have You Got? (HYG) software has been designed to make the location of resources in a library as fast and efficient as possible. HYG is designed to make it easy to get from an idea to a resource. As the HYG data is independent of the main resource database, there is absolutely no risk of damage to the master copy of the library data by users of the access catalogue, whether it be stand-alone or networked. All useful options are displayed at the bottom of the screen at all times, and there is on-screen help available for all functions. A number of first-level search mechanisms are available in the module:

- Title Search - used to search for the title of a resource
- Author Search - used to search for the author of a resource
- Keyword Search - used to search for resources using the keywords allocated to resources by library staff
- Subject Search - used to search for resources on a topic area (see Figure 1 for an example)

A number of advanced search tools are also incorporated in HYG, including:

- Code/subject Search - code groupings can be accessed directly if the user is familiar with the Codes
- Series Search - used to search for items according to series
- Subdivision Search - used to search for specific subdivisions of all subject areas
- Author (sounds like) - can be useful for locating authors with unusual surnames
- Multi-field Search - used for more complicated searches involving more than one detail

The results of a search in HYG can be printed out as resource lists or as a bibliographical aid.

THESAURUS

The Thesaurus provides a fully integrated research assistant for HYG. As the name suggests, it helps users to translate their ideas into terms which can be used for subject searches in HYG. For example, a primary school student may wish to do a project on cars. In most cataloguing systems, when he or she typed "cars", no subject heading would register and the student's search would be fruitless. In HYG, however, when no subject heading registers, the student can select the Thesaurus, which would indicate that the student should try typing in "motor vehicles". The student's search would then succeed.

PRINTED CATALOGUES AND SHELF LISTS

Printed catalogues are particularly useful in libraries with limited computer hardware available for HYG access or for use in the classroom. Full catalogues or area-specific sub-catalogues can be produced from the LibCode software. Catalogues can be printed by code groupings or by a number of other criteria. For libraries not using Circulation, hardcopy shelf lists can be produced for stocktaking purposes and used in conjunction with the CodeCat module. The CodeCat module allows for tagging of culled or missing resources, which can be entered manually if stocktaking from shelf lists.

CIRCULATION

The Circulation module is designed to minimise the time consuming and repetitive tasks involved in loans management, so that more teacher librarian and/or library aide time can be used to provide the best possible access to resources.

The Circulation module can be operated with or without barcodes and barcode readers. Borrower information can be inloaded into the Circulation module from other databases, such as the administration database, or entered directly.

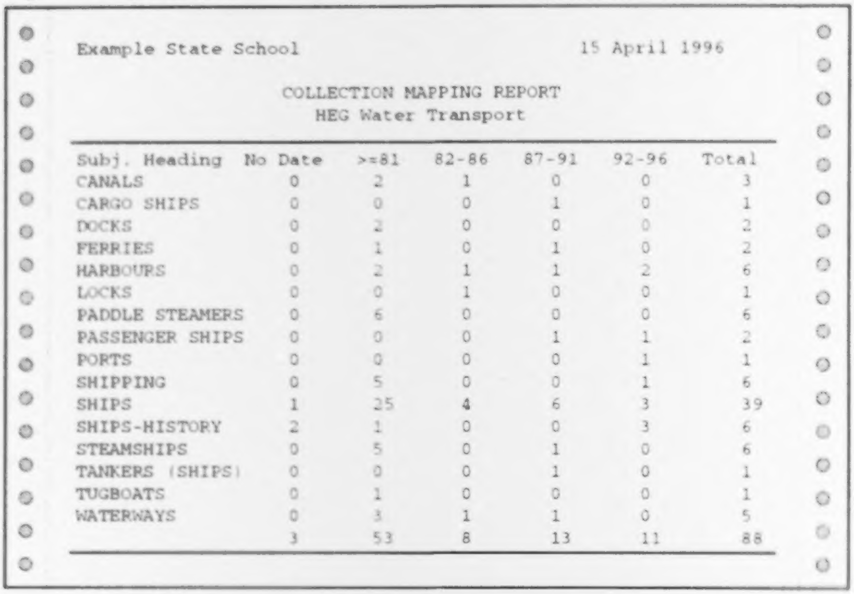
The Circulation module has facilities for extensions, advance reservations and outstanding loans reports. A history of loans is kept to make it possible to monitor students' reading habits and resource demands.

Electronic stocktaking of resources is possible from within the Circulation module, using either portable barcode scanners or fixed station scanners. Stocktakes can be made of the complete collection, or alternatively, only some part of the collection. Reports of items missing and loans found can be generated and missing items tagged for checking or removal at a later date.

THE COLLECTION MAPPER

The Collection Mapping facility is the final module of the LibCode system. It provides resource managers with easily accessible data on the age or currency of resources within specific topic areas as well as the relative strengths and weaknesses of the sections of the collection or the collection as a whole.

Figure 4: A Topic-Specific Collection Map



```
Example State School                                15 April 1996

                    COLLECTION MAPPING REPORT
                       HEG Water Transport
-------------------------------------------------------------------
Subj. Heading  No Date    >=81    82-86    87-91    92-96    Total
CANALS           0         2       1        0        0         3
CARGO SHIPS      0         0       0        1        0         1
DOCKS            0         2       0        0        0         2
FERRIES          0         1       0        1        0         2
HARBOURS         0         2       1        1        2         6
LOCKS            0         0       1        0        0         1
PADDLE STEAMERS  0         6       0        0        0         6
PASSENGER SHIPS  0         0       0        1        1         2
PORTS            0         0       0        0        1         1
SHIPPING         0         5       0        0        1         6
SHIPS            1        25       4        6        3        39
SHIPS-HISTORY    2         1       0        0        3         6
STEAMSHIPS       0         5       0        1        0         6
TANKERS (SHIPS)  0         0       0        1        0         1
TUGBOATS         0         1       0        0        0         1
WATERWAYS        0         3       1        1        0         5
                 3        53       8       13       11        88
-------------------------------------------------------------------
```

USING THE CODE CATALOGUE WITH OASIS LIBRARY

The Code Catalogue can be used as an educational tool in conjunction with OASIS to provide OASIS users with additional resources which enhance the learning and teaching process. The LibCode modules compatible with OASIS are LibAid, HYG and the Collection Mapper.

LibAid is used to overlay OASIS cataloguing and search modules. LibAid provides the cataloguer with information about relevant Dewey Numbers and subject headings so that informed cataloguing decisions can be made. Dewey Numbers can be inserted directly into the OASIS Dewey field.

Staff and students using OASIS can be given access to all the benefits of the Code Catalogue's relational subject search capacity through the generation of HYG data from the OASIS standard disk printout. Most subject headings are directly matched, and (optional) minimal manual entry of unmatched subject headings through the LibAid Editor ensures that the HYG is fully compatible.

The Collection Mapper functions from the HYG catalogue produced from OASIS. Its advantages are identical to those of the Collection Mapping facility in the dedicated LibCode software.

LIBAID AND BOOKMARK: AN EXCELLENT COMBINATION

LibAid provides BookMark users with a cataloguing tool and a powerful search instrument. As with OASIS, LibAid can be used to enter Dewey Numbers and control subject heading allocations in BookMark.

For BookMark users, LibAid's search capacities offer a most effective tool, as LibAid directly accesses the BookMark subject file and clearly marks corresponding LibAid headings as "used". This assists the searcher to get the best results possible from searching time.

CONCLUSION

The Code Catalogue and the LibCode system represent a real alternative to integrated library automation systems. Although the system was designed specifically for schools, its facilities for non-expert cataloguers and users of all levels have made the system an attractive, affordable alternative for non-profit organisations, such as parishes and community groups, and business libraries as well.

FOR FURTHER INFORMATION

Anyone interested in more information about the Code Catalogue may contact:

Alan Ford
LibCode Library Systems
P.O. Box 6163 Toowoomba West QLD 4350
Tel: (076) 332604
Fax: (076) 333465

Automating Two Schools with Book Mark

Fiona Harper

In 1988 I was the teacher librarian at Seaford Primary School - an 'average' suburban school located about 40km south of Adelaide with an enrolment of over 400 students. I was very interested in automating the school library. There was not much hope for this at the time as the only automation system chosen by our education department (now known as the Department of Education and Children's Services) cost up to $30,000. However, I heard of a system called Book Mark, which was still in the embryonic stage at that time, and contacted the author Dean Hodgson, who worked for the Department's software development and computer support unit located at the Angle Park Computing Centre. Dean was writing Book Mark for schools that could not afford the other expensive and complex systems then available. Because he had been a teacher himself and had worked with school libraries, he was designing important parts of the system to be used by young children. As a result of this contact, I was invited to be one of the trial schools, the first in the Southern Area.

We started with one computer (an XT) and a dot-matrix printer as well as the Book Mark software, barcode labels and pen-type barcode reader. During the following year Book Mark was rewritten, improved and revised as all of the trial schools and eventually the 'real' user schools provided input and feedback. This proved an enormous benefit because the software grew to reflect exactly what we teacher librarians wanted.

In 1990, we added a small Topware network with a 286 fileserver, two XT workstations and a modem. Having the modem allowed us to do online cataloguing of our new books through ASCIS. We did not use Recon as it was in the early stages of development, and we did not have the extra money either. My 1991 budget would have included further updating, e.g. more workstations, however, just as everything was running smoothly and all the hard work of cataloguing was done, I transferred to Moana Primary School.

Moana was much the same size as Seaford - but in three years was to became one of the largest R-7 schools in South Australia as it is located in a rapidly expanding suburban area. My priority at Moana was to automate and to build up an ageing collection. By this stage I felt as if I was a bit of an expert. I knew it would have to be done in stages because the school would not be prepared for a large outlay. I was right! It was hard work to convince the senior staff and the Finance Committee to spend the $3000 required to get started with one computer. Their initial reaction was negative; they didn't think myself and the students needed a computer in the library. I showed them a rather large shoe box full of yellow cards, which were the previous year's (legitimate) losses - the total value of which amounted to over $3000! So, automation went ahead. This price was the lowest we could get by with to start and it allowed us to purchase only a 286 computer at the time.

Book Mark proved ideal for our requirements. We needed a system uncomplicated enough for junior primary students (ages five to eight) to easily use. I was able to teach new reception children to wand in and out their own books. I was adamant about this - I wanted our students to learn the skills of using a barcode reader and the satisfaction of handling their own loans and returns, all the students, not just a selected monitor from each class.

I wanted students to be able to retrieve information in searches even with misspelt words. My experience shows that while most children have no difficulty operating a computer, they do have difficulty with correctly spelling the search items. Book Mark's Public Access allows a 'begins with' search as well as a 'word' search and it proved easy enough for the junior primary children to use and have success.

Another necessity was that the software should be able to run on affordable hardware and that the hardware have a multipurpose function so we could get the most out of the investment. Because Book Mark runs in MS-DOS and Windows, it proved ideal at allowing this and I was pleased when Dean included some special features to take advantage of this – such as being able to run another program from the Public Access menu and have Public Access on other computers in the school.

I also considered the reliability of not only the software but the source. Would they be in business many years down the track? Were they reputable? Did they have library and educational expertise? Again, Book Mark proved itself in these areas. It is also a product of our own education department and not that of a private company, and this has helped me feel well supported and fairly treated. Many teacher librarians, including myself, have had major input on the features and design of the system to the extent that many of us feel the software has almost been custom written for us. All of this helped with the sense of security I felt about my choice in the software.

By the end of 1991 we were well on our way and had all the fiction and non-fiction stock catalogued in our database. We still had not used Recon, as money was short. However, much of the stock at Moana was the same as that which I had previously catalogued at Seaford, so we exported the fiction from Seaford's system and imported it into Moana's, saving considerable time. In the next budget, we had the money to do the last of the non-fiction and the teachers' library with Recon.

I had devised a 5 year plan for Library Automation and presented it to the school's Finance Committee. It was important that the Committee realise that funding Library Automation was not a one-off event; that what we had done so far was just the start and that because computer technology changes rapidly we would have to not allow ourselves to get into a situation where our computers could not use important new software. In the second budget (early 1992), we added two 286 workstations and a simple RPTI network. This wasn't the level of hardware I had wanted; it was the minimum that could be purchased for a small network and all that the Finance Committee was prepared to fund.

I always thought it important to justify the financial outlay for our automation and Book Mark was very helpful here. I bought Satchel software, produced here in South Australia by our own education department. The programs were installed in the fileserver and made accessible to the workstations through Book Mark itself. When those computers were not being used for circulation and searching, children could use programs such as Kadimakara, Picture Book, The Lost World, Granny's Garden, and so on, all of which are educational. As Book Mark allows these programs to be run from a menu in Public Access, it keeps records of the amount of times these programs are accessed so one can assess the popularity of them.

By 1993, the system had proven itself and my Finance Committee finally understood that library automation was worthwhile and an ongoing financial outlay. It became easier to obtain funds to upgrade. We added a 486DX-50 computer as a fileserver and then continued to upgrade and add hardware every year.

We now have six computers: one main fileserver and five workstations, all 486s, networked with Windows for Workgroups. There are three barcode readers and two printers. All the computers have CD-ROM drives and there are 19 shared programs on the server's hard drive. We have built up a stock of 65 CD-ROMs. Because of the way Book Mark operates through Windows - as an icon like any other program - it is easy to switch from Public Access to a CD to Word to the modem or any other application at any time on any computer. This provides enormous flexibility: sometimes all the computers are using Book Mark; other times two might be doing Circulation, one doing cataloguing and the other three CDs; at other times all the computers might be used for CD-ROMs. It varies depending on what we need to do at the time.

Several years ago we bought a modem in order to use NEXUS and PLAIN. Last year we updated the modem to a high speed model, and acquired the GoNEXUS software, which gives easy access to the Internet. One of the highlights has been our students corresponding with a Geophysicist in Antarctica, and one particular teacher has been very happy to correspond with her son in Boston, USA.

My five year plan has now been reduced to a two year plan. Five years is too long in this rapidly changing technological world. I continue to upgrade hardware every year to ensure that I am not using modern technology on old computers, the result of which can give problems. This strategy also spreads out the cost of upgrading. One or two thousand dollars a year is more affordable to the school than eight thousand plus every five years. Book Mark itself is constantly being upgraded.

One of the good things about Book Mark I've found is that the developers are always responding to teacher librarians and adding and modifying the software. Dean Hodgson himself attends many user group meetings and is well aware of the needs of schools. I have found the support excellent and really outstanding, especially for the price.

I find that I use the statistics and reporting functions of the software quite a bit. I obtain printouts of borrowing statistics (great for showing to the school council so they can see how much the library is used), Public Access searches, use of other computer programs, reservations, items added and deleted each month. Printouts of the borrowing histories of individual students and classes are useful parts for their Learning Profiles, and the new analysis features in this area are also proving worthwhile. Another useful area of statistics involves the loan log, which records every item borrowed. I have been able to search this to compile quite a variety of lists including previous borrowers and lending patterns for groups of students and items.

I am currently using the new Book Reviews module with great success. Simply put, a student or teacher can type in a review of a book and all other students can read the review from Public Access. Another useful module is the barcode label printer. I use this to print out missing and replacement barcodes for students and items.

I am extremely satisfied with my selection of software. It allows me to provide a great service to our students and staff at a reasonable cost. We had approximately 450 students to start with, increased to over 700 and now are back down to 400 with the opening of a new school nearby. Book Mark has worked extremely well for us throughout these changes to the school, and I have no hesitation in recommending this software to primary schools, secondary schools, area schools and indeed any other organisation with a library.

Imagine all the Possibilities...

Arthur Winzenried

When first arriving at Lilydale Adventist Academy it took only a short time to become totally immersed in the absorbing occupation of clipping newspapers and adding them to the vertical file. Senior curriculum, especially the demands of the VCE and its emphasis on current media opinions, made this essential. However, no matter how hard I tried, the clipping and filing failed to excite me and provide that measure of fulfilment which all librarians feel for a job well done. There was also the other consideration of outcomes. If one hundred clippings were placed in the vertical file on Tuesday, there were bound to be one hundred and ten missing by Wednesday. Apparently Murphy has yet another Law I was only discovering, *viz.* 'the number of articles placed in a vertical file is directly proportional to the number knocked off'. The situation seemed to be first in best dressed in the sense that the first student to reach the files got pick of the pocket as it were. What to do?

Enter young John Devine, a man of some considerable talent. He had designed the BLISS Library Package some years ago and was, in 1993 developing a Windows format update. Known as Imagine this new package is still evolving but it has some very fascinating features for educators and librarians.

Imagine is a Windows based IBM compatible system using Windows NT as its operating system. This mean it is pre-packed suitable for extensive networking, in formats familiar to most computer users and integrates well with the large range of Windows compatible software. Our decision at Lilydale was biased towards an IBM type of solution because a large majority of students were committed to this format. The NT operating system gave us the decided advantage of future direct connection with optic fibre communications without expensive additional machinery (routers, etc.) and a networking system with complex accounting facilities built in to monitor all student activity. The NT possibilities extended to external connections for Internet and for student dial-in services as well as for sister schools to easily connect and share resources.

Imagine offers all the usual library package facilities but it has some interesting additional possibilities. Being entirely Windows based it meshes seamlessly with student work programs such as Microsoft Word 7.0 or Word Perfect. It meshes equally well with multiple CD-ROM operations and a vast range of softwares - net result, a computer system for all seasons! A single network for all activities inside and outside the school.

As a library package, though, Imagine offered us some significant features. For the first time we were able to scan material into our system, catalogue it as if it were a book or pamphlet, allow students full search activities over the entire contents of the item and link different formats together. Thus, a magazine article can be shown in full text (where copyright allows), linked to related books in the library and to several scanned illustrations from other sources that are relevant. The searcher follows from one item to another with the option of at any time being able to down load the material into a Word document. Imagine all the possibilities!!

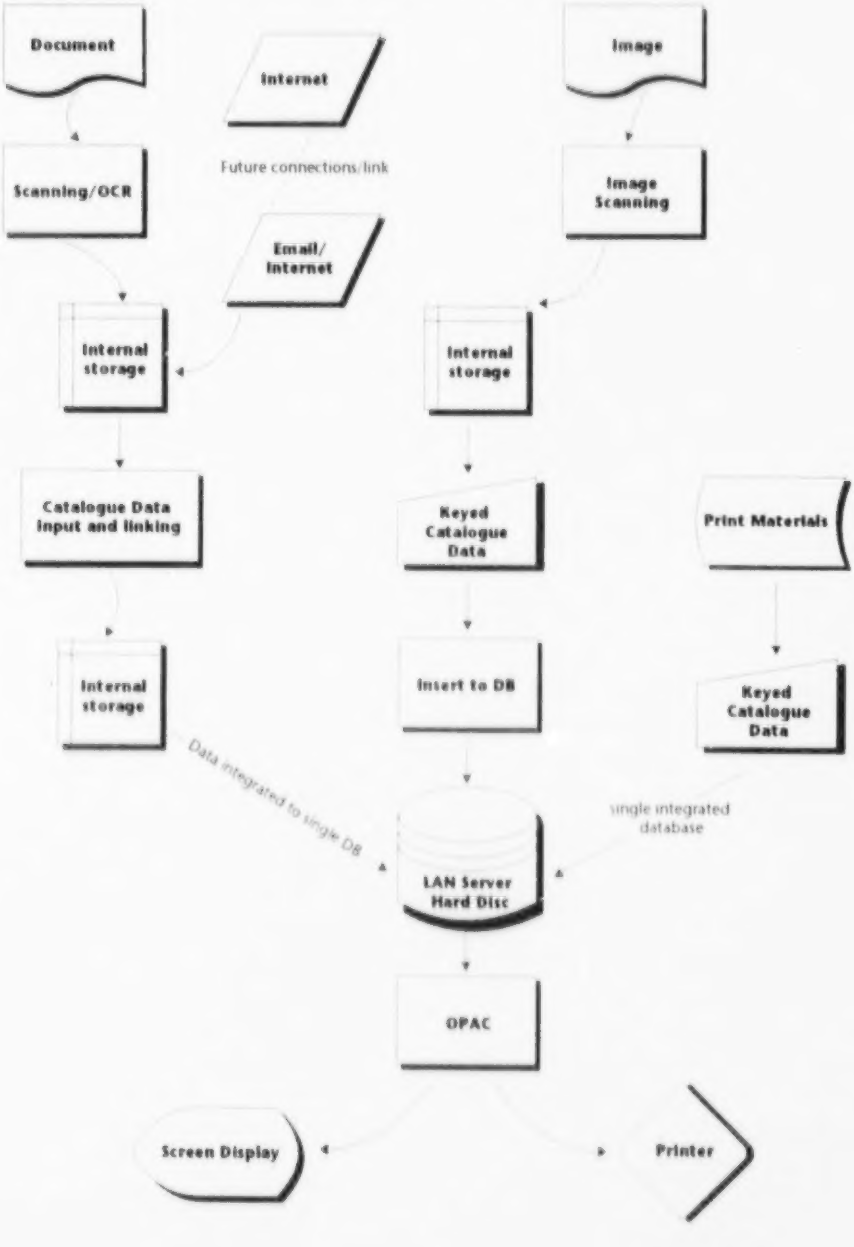
In our environment this has produced some interesting results. Early on, the students had a ball. They were able to download all sorts of material and hand in larger, brighter, juicier assignments than ever before - until the staff caught on. Then quite a little revolution occurred. Staff had to start replanning assignment topics to ask more deductive and inductive questions. Students were required more and more to collect the information and then discuss and analyse it instead of just presenting a collection.

In library operating areas, practices were revolutionised overnight. More of the vertical file was electronically scanned (copyright became more of an issue than ever before) and catalogued using shortcut computer technologies. Filing was thus eliminated in its conventional form and replaced by a system that allowed fast retrieval, very effective controls over relevance and currency. Instead of spending absolutely hours sifting through remaining vertical file articles to remove all out-of-date material a simple computer command to remove all records before date YYYY.MM.DD does the same thing almost instantly. Further, instead of the first student to the article removing it, now students could browse freely, copy as necessary and have the number of copies recorded by the server computer to check on copyright issues.

Accessibility, reliability and availability have been dramatically improved as the system has been gradually implemented. Vertical file materials now able to be incorporated into the system include all text types (using the Omnipage Professional package with our scanner) and pictorial types (using Deskscan with our scanner). Next year we hope to add both a video grab and the new Internet module. The video grab will enable us to include video material within the catalogue, searchable via OPAC and able to be linked to text materials, books and still images. The Internet module will allow direct cataloguing of live web sites as well as viewing of HTML format documents already stored among our virtual items. Imagine the possibilities of the fully multimedia library created by you and your students. Already we have students making slide show packages for the system as part of their Information Technology or Communications courses. These sequences can then be saved in the same way as other materials, catalogued and indexed, fully searchable.

From a library operations point of view a fully integrated, computer based multimedia system sounds rather high-tech, and it is. But that does not necessarily mean that one has to be a computer freak to operate it. The package shares much in common with others on the market in its essentials but the basic operating medium gives it considerable ability to adapt and to incorporate all forms of library material - real and virtual. All material is catalogued using standard USMARC tags and readily converted to several other common formats. Referring to Figure 1 will help illustrate the processes involved as different media are incorporated into the common catalogue.

Figure 1: Flow chart of data processes using Imagine 3 at Lilydale Adventist Academy


Document
Internet
Image
Scanning/OCR
Future connections/link
Image Scanning
Email/ Internet
Internal storage
Internal storage
Catalogue Data Input and linking
Keyed Catalogue Data
Print Materials
Internal storage
Insert to DB
Keyed Catalogue Data
Data integrated to single DB
single integrated database
LAN Server Hard Disc
OPAC
Screen Display
Printer

The concept of a virtual catalogue as large (larger in the not too distant future) can be rather amazing. It is also something of a challenge. For student use though, the importance of economical, readily available information linked in with other forms of data (CD-ROMs, and so on) all so easily updatable is a significant advance. Budgeting has taken a different direction as less money has been allocated to book format materials while online data, electronic materials and computer memory to store the virtual files have seen increased spending.

While present library policy is definitely not directed at eliminating books from the shelves, it is important in the present educational climate, to carefully re-assess the proportions of material types. Modern curriculum needs are tending to make systems such as Imagine more necessary even in small libraries and it appears to me that we are entering a new age of data management which will see more small libraries linking up to share an increasingly large proportion of virtual data in order to meet budget constraints and yet adequately resource the curriculum.

Imagine is one program which is ideal in this sense. Though quite able to handle libraries of almost any size, its flexibility is quite incredible. Within the package are the capabilities to carry out all library functions but also to store school archival materials of all formats, catalogued and readily accessible; to store in indexed form, student photos and thereby produce ID cards, excursion ID forms and other student control materials; to form direct links with Internet (the Windows NT medium makes connection very simple and economic) and even catalogue active Internet WWW sites allowing student access to the sites but not sideways into other material or onto the WWW as a whole.

Although all of this is beginning to sound like an advertisement, our enthusiasm for a particular package is because it meets so many of our present and future needs. In common with many schools Lilydale Adventist Academy needed a system that was affordable yet provided adequately for the foreseeable future (getting shorter all the time). We also needed a library package that was suitable for single person operation yet offering expansion possibilities well beyond that. A common platform on which all the various software used around the school was also a major requirement. Too many establishments, and we used to be one of them, have tried to maintain two systems, one for the library and one for CD-ROMs, etc.

For our establishment the uniting of powerful library packaging and general data access to the utility computing areas was the clear solution to our needs present and future. An interface familiar to students and with which their own machines at home could readily communicate made a Windows based library package very attractive. The possibilities presented by this particular package have left us amazed at what other values the combination has. We are presently imagining all sorts of future possibilities.

Managing with Microfusion: A Case Study

Chris Skrzeczynski

INTRODUCTION

Our Lady of the Rosary P-7 School (OLR) resources 520 students from Pre-school to Year 7 and a total staff of 40. This includes specialist teachers in the areas of art, music, religious education and sport. The school's Resource Centre houses the library, the computer centre, a teacher reference area, student work areas and a meeting room and as such is an extension of each classroom. With the total involvement of the resources and services of the Resource Centre in the learning programs at OLR, a policy of central resource location is essential to allow access to the collection for all users. This is managed by the Microfusion Information Management System. The development of the present level of resource management only became possible with the implementation of an information management system. The automation process has been an evolutionary one. This case study explains the passage of progress from a rudimentary automation system through the conversion to the more sophisticated Microfusion Information Management System.

The library automation story at OLR began in 1987 when the circulation of resources became an impossible task for the staff. At this point a system was installed for the purpose of simplifying the circulation process. In these early days, the fact that the system provided catalogue facilities was an added bonus. Since circulation was the prime concern, the searching facilities crept in slowly. Looking back, the learning curve of the teacher librarian has been steep. The automation computer was the first computer she had ever touched - it did not blow up on the first day - although the support service behind the program did! Picture the scene: computer arrives, software on board, a rudimentary manual and the installer departed never to be seen again! It was several years before any help arrived! By that time the teacher librarian was able to conduct help sessions! There is nothing like being thrown in at the deep end. The early years of operation were through the one and only computer. When we were finally rescued from the darkness, over time, three terminals were installed and we were away with catalogue usage. The day finally came when the card catalogue was removed. This was a major step. Only those who hail from the early days of school library automation will understand with what fear and trepidation this was done! We were there … or so we thought!

Not so. Our collection was growing. Usage was expanding. Sophisticated computers for student curriculum use appeared. Satellite collections around the school were difficult to manage. The whole concept of the school library was changing. Around us it had become a fully fledged Resource Centre. We could not fit the collection, the facilities and the users in the building any more. The original automation system was not developing. What was suitable in 1987 was not suitable for the twenty-first century.

SOLUTIONS?

1. Build a new building. This was done (but that is another story).
2. Find a new automation system. We discovered Microfusion.

The search began for an alternative system as the bricks and mortar were setting. The requirements were simple:

1. The system must be able to cope with the total spectrum of resources; books, computer software, videos, audio tapes, kits, posters, objects, extension cords, microphones, first aid bags, even the adopted cat ('Micro') has a barcode!
2. The system providers must be committed to on-going development of the system.
3. There MUST be help available!

Based on these criteria, The Microfusion Information Management System was selected and installed at OLR just after the bricks and mortar had dried.

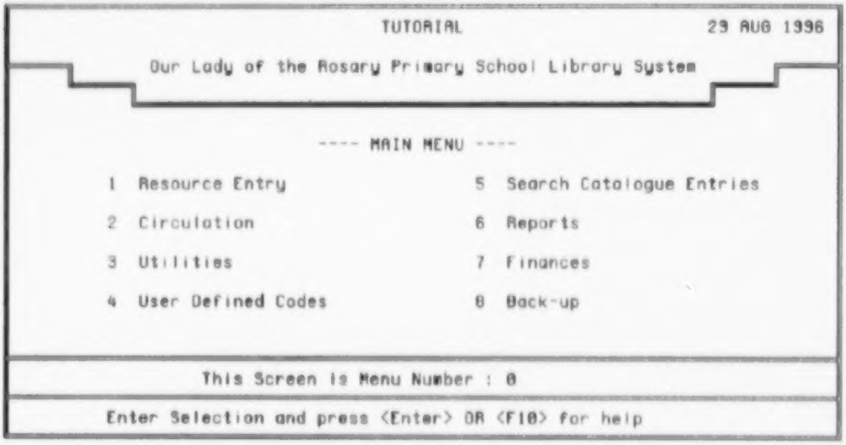
1. Capabilities of the system.

In Microfusion we were thrilled with the:

- simplicity of the search programs for students and staff
- ease and speed with which resources could be located
- user friendly and flexible circulation system
- administration of the system being very logical, with many features available to assist in collection development and resource management.

Although the system is available in modules (Circulation, Stocktake, Finance and Acquisitions, Periodicals, Book Hire, etc.), there are only a dozen of the 670 current sites who have not purchased the full system. It is comprehensive and sophisticated but so easy to use.

Figure 1: Microfusion main menu



```
TUTORIAL                                              29 AUG 1996
         Our Lady of the Rosary Primary School Library System

                         ---- MAIN MENU ----

   1  Resource Entry                5  Search Catalogue Entries
   2  Circulation                   6  Reports
   3  Utilities                     7  Finances
   4  User Defined Codes            8  Back-up

                  This Screen is Menu Number : 0
          Enter Selection and press <Enter> OR <F10> for help
```

2. Development of the system

There are generally one or two major upgrades and one or two minor releases distributed to all registered sites free of charge each year. These are distributed on floppy disk with extremely clear (and dare I say foolproof!) instructions for loading.

Whilst the majority of Microfusion sites are using the software on the PICK R83 operating system, since November 1995, sites have been installed with Advanced PICK in order to take advantage of improvements in hardware compatibility (with the faster 486 DX/4s and Pentiums) and compatibility with Windows for Workgroups and Novell networking. Advanced PICK is enabling the R83 sites to upgrade to Windows-based networked systems in stages to avoid any sudden, large financial outlays. Also in October 1995, the Microfusion Information Management System application for Microsoft Windows NT was released. This software is providing flexibility and power of a sophisticated, yet easy-to-use library management system on an almost universally accepted platform.

3. Help!

Having read this far, the reader will understand why this was a very important factor for OLR. Indeed it is so for all sites. We could not go past the system support provided for Microfusion. Notwithstanding the very carefully supervised conversion and installation process which is described below, the ongoing support is excellent. At this stage, we are a remote site because the Head Office of Microfusion Pty Ltd is in Perth. There are also offices in Melbourne and Adelaide. Remote status works to our advantage. Phone help is available from 8.00am in Melbourne to 7.00pm EST in Perth via a 1800 number (including the school holidays). As public holidays differ from state to state, one of the Microfusion Offices is frequently operating when we are not. This is of particular value to OLR because it is at such times that I experiment with the system and can find myself in need of advice. The instant effectiveness of phone help cannot be overemphasised. Microfusion support staff are teacher librarians and they actually talk with you to help you through your query. As teacher librarians, they understand the complexities of a school library and not only provide technical support but also have the experience to advise on processes that suit the school library concept. They know what it is that students and teachers need to achieve. Support is available in blocks of two, five and ten hours (very reasonable rates) or on a pay as you go basis (more expensive) and help calls are calculated in six minute lots.

Professional staff training is provided. Sites are provided with two days of Introductory Training to get them off to a good start. This can be done at Microfusion offices or on site, depending on the numbers involved, when the school is ready to implement the system. There are also half day pre-automation and ASCISRECON (data preparation) courses and approximately 10 Advanced Training Courses of half or full day duration for those wanting to get more from their system. All courses are conducted by Microfusion's highly experienced teacher librarians.

MICROFUSION ENTERS OLR

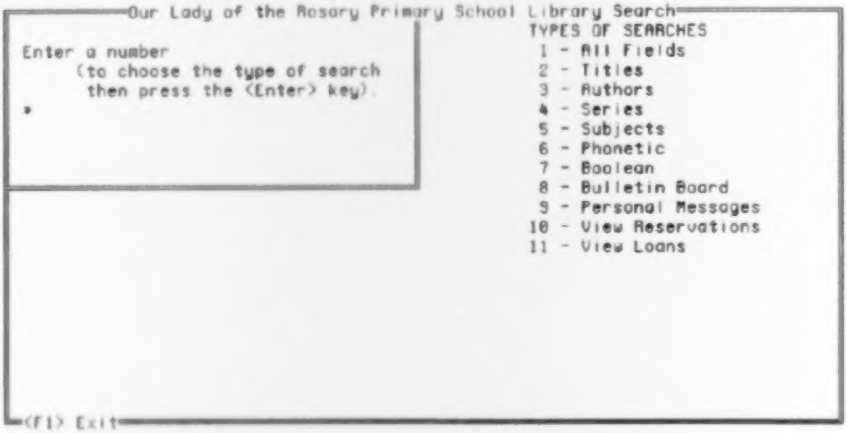
The conversion process was very carefully monitored by Microfusion and was problem free. Some extra hardware was purchased, system modifications made, cord measurements taken. A pre-conversion site visit was made to ensure that all was in order. New item bar codes were attached to every resource prior to the conversion as the old bar codes lacked check digits (which ensure there are no errors in circulation). New patron bar codes were also prepared. Finally, the data was sent on disk to Perth where the conversion occurred during a school holiday period. The new computer, complete with the system and the expert arrived for installation and training. Disruption to resource borrowing was minimal. We closed for a week. This allowed two days for staff introductory training and three days for registering the new bar codes for every item. Any that were missed were quickly converted in a two second operation at the time of borrowing.

Microfusion operates at OLR on a central computer with five additional terminals. One is located in the work room where resource processing can be carried out at any time. One station sits on the circulation desk for use by Resource Centre staff. Circulation occurs at this terminal. Four search terminals are available for user catalogue searches but any terminal could be used for any function e.g. all could be used for stocktake or data entry, etc. Some of the terminals are also used for other applications (e.g. SCIS access etc.)

USER EDUCATION

The OLR users had had prior experience with an automation system. Instructions are very clear on the screens and context-sensitive help screens are available throughout Microfusion.

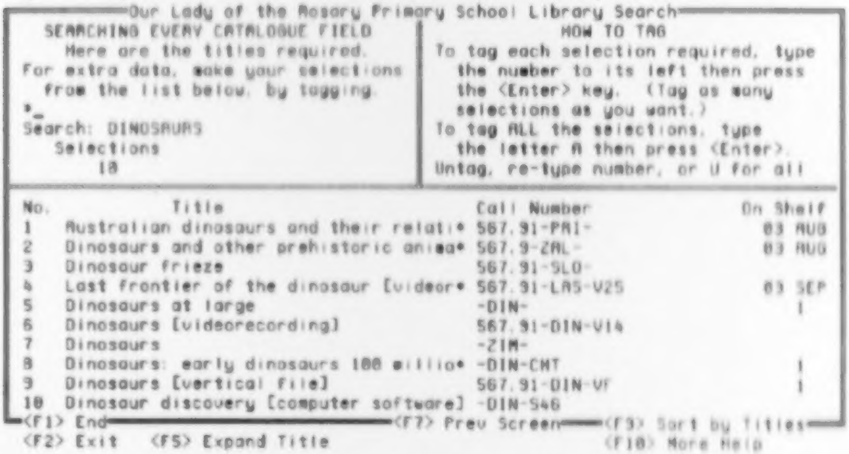
Figure 2: Microfusion search screen



```
Our Lady of the Rosary Primary School Library Search
                                                    TYPES OF SEARCHES
Enter a number                                        1 - All Fields
     (to choose the type of search                    2 - Titles
      then press the <Enter> key).                    3 - Authors
*                                                     4 - Series
                                                      5 - Subjects
                                                      6 - Phonetic
                                                      7 - Boolean
                                                      8 - Bulletin Board
                                                      9 - Personal Messages
                                                     10 - View Reservations
                                                     11 - View Loans
<F1> Exit
```

(Note:We have chosen not to have the last five options activated on our search screens.)

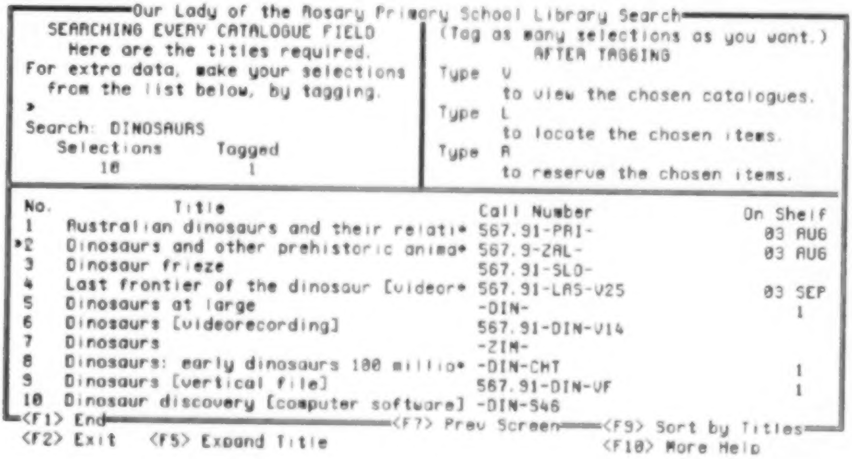
Figure 3: Sample search screen 1



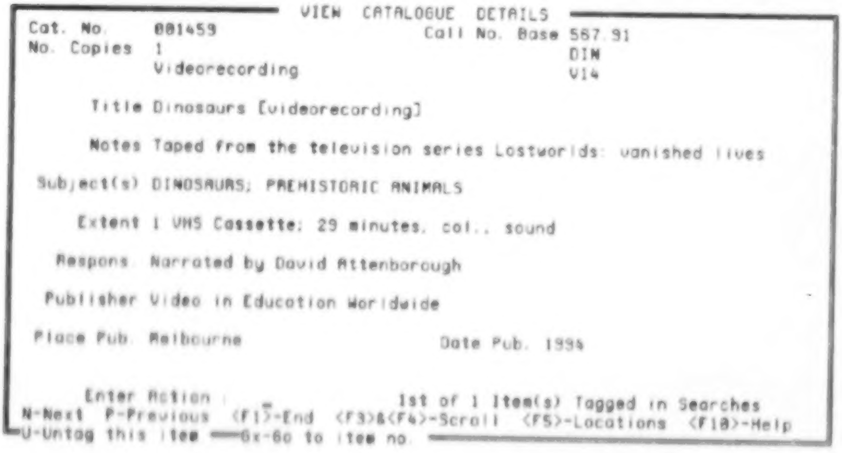
```
Our Lady of the Rosary Primary School Library Search
  SEARCHING EVERY CATALOGUE FIELD                      HOW TO TAG
    Here are the titles required.       To tag each selection required, type
For extra data, make your selections      the number to its left then press
  from the list below, by tagging.        the <Enter> key.  (Tag as many
*_                                        selections as you want.)
Search: DINOSAURS                       To tag ALL the selections, type
   Selections                             the letter A then press <Enter>.
      10                                Untag, re-type number, or U for all

No.             Title                          Call Number              On Shelf
1   Australian dinosaurs and their relati* 567.91-PRI-                    03 AUG
2   Dinosaurs and other prehistoric anima* 567.9-ZAL-                     03 AUG
3   Dinosaur frieze                        567.91-SLO-
4   Last frontier of the dinosaur [videor* 567.91-LAS-V25                 03 SEP
5   Dinosaurs at large                     -DIN-                               1
6   Dinosaurs [videorecording]             567.91-DIN-V14
7   Dinosaurs                              -ZIM-
8   Dinosaurs: early dinosaurs 100 millio* -DIN-CMT                            1
9   Dinosaurs [vertical file]              567.91-DIN-VF                       1
10  Dinosaur discovery [computer software] -DIN-S46
<F1> End                            <F7> Prev Screen   <F9> Sort by Titles
<F2> Exit   <F5> Expand Title                          <F10> More Help
```

Conversion for the users was simple. Student and teacher level training programs are available from Microfusion and we have implemented these, adjusting them to our collection so that each exercise is fruitful. Training is on-going as students progress through the school and are able to manage more complex searching strategies. Microfusion training occurs within the context of the Information Literacy Program that exists in the school. Many students enjoy searching as a hobby at lunchtime! This is firm indication that the activity is both fruitful and simple:

Figures 4 and 5: Sample search screens 2 and 3



```
            Our Lady of the Rosary Primary School Library Search
  SEARCHING EVERY CATALOGUE FIELD      (Tag as many selections as you want.)
     Here are the titles required.               AFTER TAGGING
 For extra data, make your selections   Type  V
   from the list below, by tagging.           to view the chosen catalogues.
 >                                      Type  L
 Search: DINOSAURS                            to locate the chosen items.
    Selections      Tagged              Type  R
       10              1                      to reserve the chosen items.

 No.           Title                         Call Number           On Shelf
 1    Australian dinosaurs and their relati* 567.91-PRI-             03 AUG
*2    Dinosaurs and other prehistoric anima* 567.9-ZAL-              03 AUG
 3    Dinosaur frieze                        567.91-SLO-
 4    Last frontier of the dinosaur [videor* 567.91-LAS-V25          03 SEP
 5    Dinosaurs at large                     -DIN-                        1
 6    Dinosaurs [videorecording]             567.91-DIN-V14
 7    Dinosaurs                              -ZIM-
 8    Dinosaurs: early dinosaurs 100 millio* -DIN-CHT                     1
 9    Dinosaurs [vertical file]              567.91-DIN-VF                1
 10   Dinosaur discovery [computer software] -DIN-S46
<F1> End                          <F7> Prev Screen     <F9> Sort by Titles
 <F2> Exit   <F5> Expand Title                         <F10> More Help
```

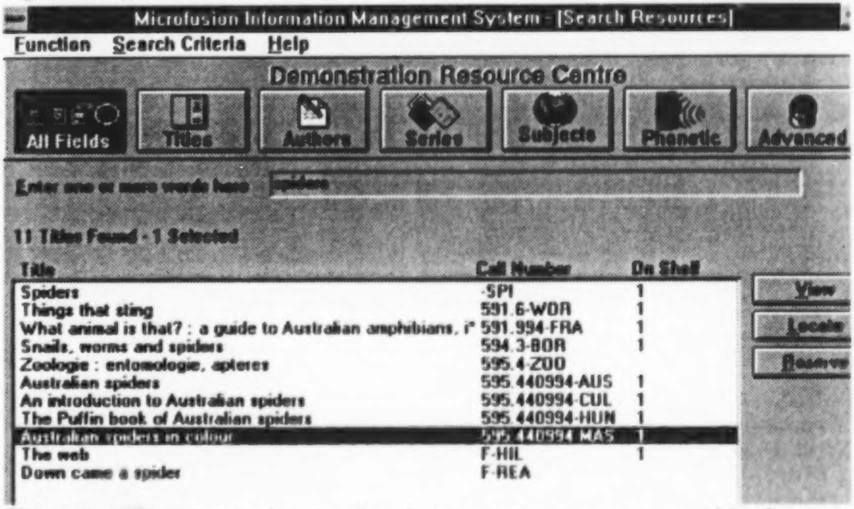


```
                      VIEW  CATALOGUE  DETAILS
 Cat. No.      001459                     Call No. Base 567.91
 No. Copies    1                                        DIN
               Videorecording                           V14

        Title  Dinosaurs [videorecording]

        Notes  Taped from the television series Lostworlds: vanished lives

   Subject(s)  DINOSAURS; PREHISTORIC ANIMALS

       Extent  1 VHS Cassette: 29 minutes, col., sound

      Respons  Narrated by David Attenborough

    Publisher  Video in Education Worldwide

   Place Pub.  Melbourne                   Date Pub. 1994

      Enter Action :  _              1st of 1 Item(s) Tagged in Searches
 N-Next  P-Previous  <F1>-End  <F3>&<F4>-Scroll  <F5>-Locations  <F10>-Help
 U-Untag this item  Gx-Go to item no.
```

WHERE TO FROM HERE?

Since Microfusion entered OLR, in addition to software upgrades, there have been two significant platform changes. This is indicative of the speed with which Microfusion is developing the system to satisfy the needs of schools. An Advanced PICK version has been developed and a Microsoft Windows NT version. Our current plan is to circumvent an upgrade to Advanced PICK and move into the Windows NT version at a later date.

Figure 6: Sample Windows screen



Enter one or more words here: spiders

11 Titles Found - 1 Selected

Title	Call Number	On Shelf
Spiders	-SPI	1
Things that sting	591.6-WOR	1
What animal is that? : a guide to Australian amphibians, r	591.994-FRA	1
Snails, worms and spiders	594.3-BOR	1
Zoologie : entomologie, apteres	595.4-ZOO	
Australian spiders	595.440994-AUS	1
An introduction to Australian spiders	595.440994-CUL	1
The Puffin book of Australian spiders	595.440994-HUN	1
Australian spiders in colour	595.440994-MAS	1
The web	F-HIL	1
Down came a spider	F-REA	

This will not be necessary for us until such time as our current system and hardware are unable to provide the functionality we require or it cannot handle software upgrades that we regard as crucial to our operations. In time we will make this move because we recognise that providing access to learning resources is paramount for successful learning in the twenty-first century.

Each step along the way in the process of library automation at OLR has addressed a particular need. The present status is satisfying current needs well but it is important to recognise that school library automation is an on-going activity. It is a process not an event. As technology develops so too will the capabilities of automation systems. Microfusion is committed to developing the Microfusion Information Management System to take access to information for students and teachers into the future. OLR School will follow this path, implementing new capabilities if and when they satisfy our needs.

BEST COPY AVAILABLE

Rolling Hills Meets Alice

GLENYS WILLIAMSON

Rolling Hills Primary School is located in the foothills of the Dandenong Ranges east of Melbourne. The school is just over ten years old. From its inception, the principal was anxious to have a computerized library system. The first system was duely contracted and after some monies having exchanged hands the computer organisation failed. Without finances the principal approached Lilydale Shire (our local council) who assisted the school by installing 'dumb' terminals and linking the school with the Shire by means of a modem. Apart from some teething problems this system worked well. As we were linked with the main Lilydale Library we were also online to their OPAC which serviced all of the other Lilydale Branch Libraries. As there was no way of knowing a book's location immediately, on this particular computer system, the children were often faced with up to eight books of the same title, author and call number and each book had to be searched to identify its location. This included our own library. A very time consuming task.

After the many Shire and City Councils in Melbourne amalgamated last year Lilydale Shire was incorporated into the Shire of Yarra Ranges. This organisation then informed us that they would be closing down their system and joining a regional network of libraries. Our school would not be part of the transfer.

Rolling Hills Primary investigated various library computer systems suitable for school libraries. Our final decision was Softlink's OASIS Library. We decided that this system was an upgrade to the system we had been using and would satisfy our needs into the new century.

One of the benefits we saw was the establishment of their new OPAC - Enquiry package 'Alice for Windows'. I had seen it demonstrated at an in-service course last year and was sure that it would be of real value to our students. Whilst not a large school (just over 300 students) we are constantly growing as is our library stock. It appeared to have the features that we had been looking for including ease of access for students and teachers. The cost was also within our budget.

'Alice' offers a range of searches including title, name (author), keyword and subject. All these are easily accessed by the children. Once satisfying the inital search criteria a resource list is displayed. This includes all titles in the search range and does include a print option. This option is already being used by our teachers and proving very convenient when developing themes within class projects.

Once the resources have been located the following screen displays the full resource details. This includes a brief blurb or synopsis, if one has been included when the book was catalogued, physical description of the book or item plus all the other usual cataloguing details. I believe that the only criticism that I have of this section of the display is that the 'availability' or 'on loan' indicator is small and is in the top right hand corner of the screen. I feel, that this would be more beneficial and easier for the children to observe if it was centred on the screen.

One of the more innovative features of 'Alice' is the provision, on the following screen, for the teacher librarian to include a floor plan of the library. Whilst our library is easily accessed, the installation of the floor plan has created a lot of interest. This would be an invaluable tool for large, multi-campus and/or multi-leveled libraries. Although the initial drawing, using a drawing program such as Windows Paintbrush, is time consuming I think the practical use will be an asset to our library. The floor plan not only shows the set up of the library but also, with the use of coloured dots, the availability of request items. All areas can also be colour-coded and this coding can be carried through into the actual library.

Another exciting feature has been the linking of 'Alice' with Softlink's new product Book Wizard. Book Wizard is a leisure reading selection tool available on CD-ROM. It can be used either as a stand alone product or on a network. Book Wizard allows children to select material appropriate to their reading ability and interest. It displays scanned images of the covers of books and provides a 'blurb' and bibliographical information. We have Book Wizard as part of our OASIS Library/Library Network . If an item is held in our libary and is in Book Wizard, an icon is displayed in Alice allowing children to review the image of the cover, blurb, bibliographical information and reading level depicted in Book Wizard.

Alice for Windows - Enquiry has a large number of features that we are yet to explore including the ability to add scanned images to catalogue records, add series of slides for slide shows, video clips and sound recordings. It is also possible to catalogue a 'World Wide Web' site enabling children easy access to the Internet.

At present we are running our OPAC 'Alice' on a 486 PC. I feel that the software really needs a faster system. Computer software is changing so quickly that schools, ours included, are finding that the need for constant upgrading of hardware to support the never ending upgrading of software is prohibitive. Therefore software is running on far slower machines than it was intended and children and staff are not seeing its true capabilities.

As this is the first version of 'Alice for Windows - Enquiry' we have had a few 'teething' problems. This included a problem transferring our original data from Lilydale onto the Alice system but it was quickly rectified once the problem was identified. There are a few small refinements that I would like to see such as the 'availability' sign which I have already mentioned.

Since its installation some three months ago our pupils and staff have become very confident in using this OPAC system. It is far more user friendly than our previous system. It is anticipated that in the future parts of our school will be networked, using a Novell system, and this will enable children to access Alice from within their classroom.

School Library Automation: A Select Bibliography

Ken Dillon

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http://spider.lloyd.com/~lib-pl/libauto.htm